MUNICIPAL JOURNAL

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VOLUME XLVI
No. 4

January 25, 1919

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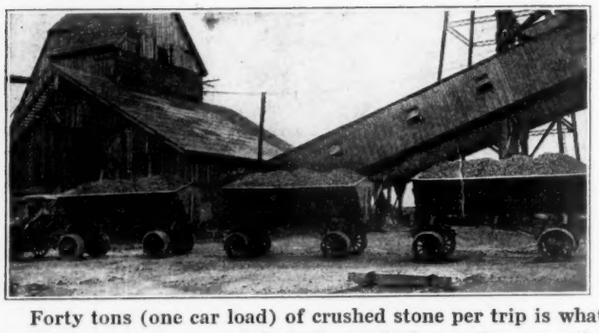
HEAVY HAULAGE EQUIPMENT



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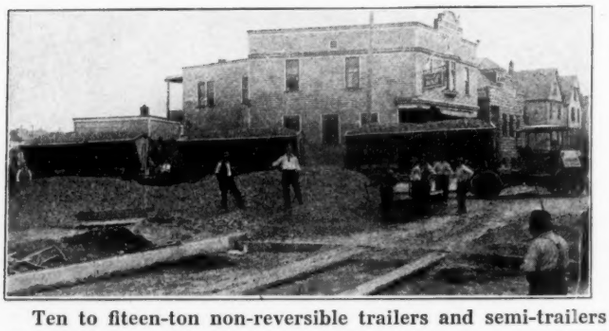

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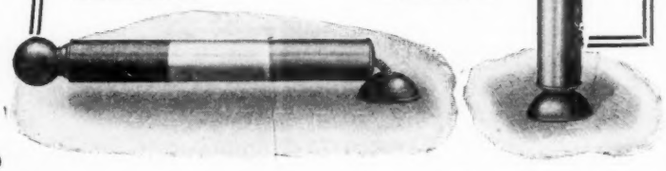

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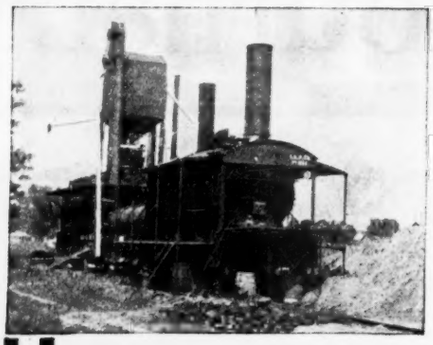

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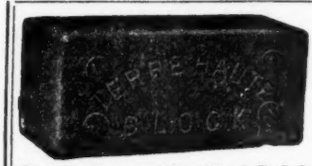

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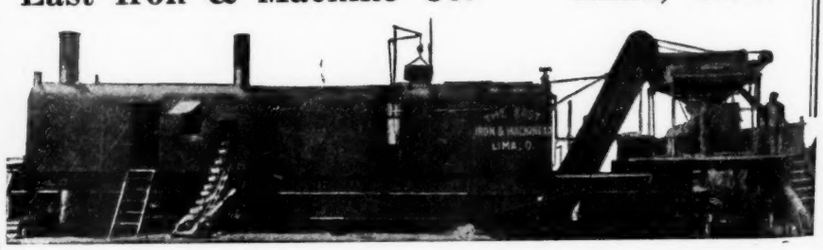

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HOUSING CONSTRUCTION AT CRADDOCK

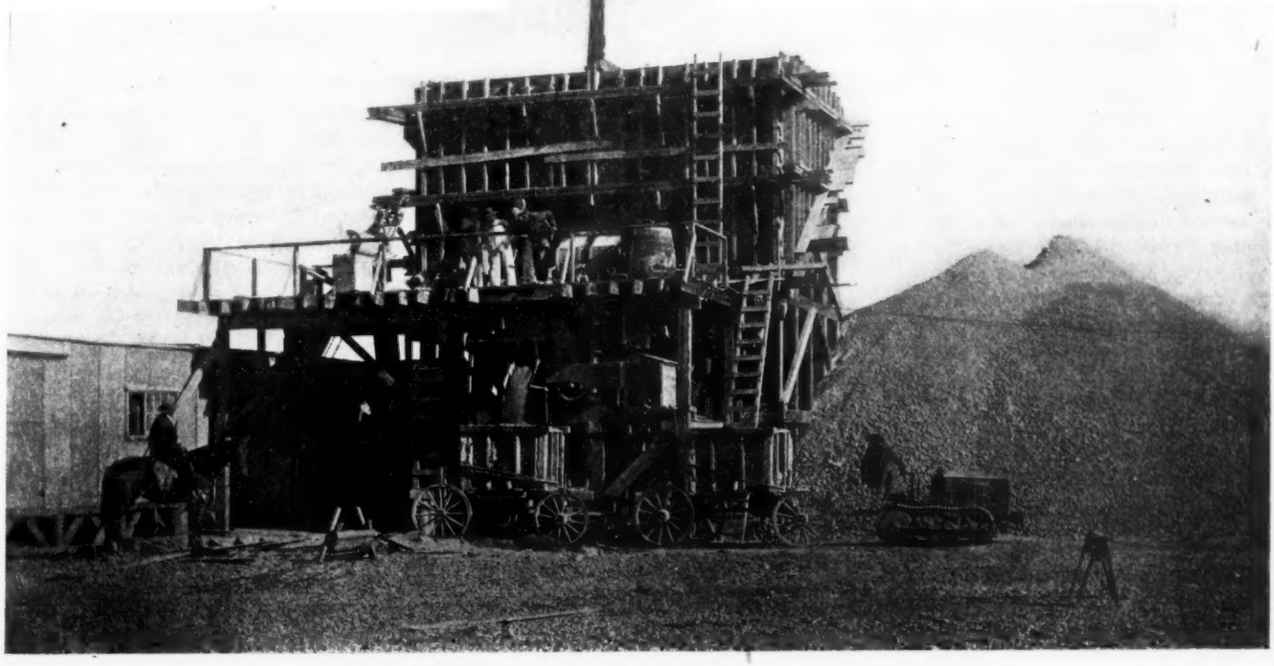
Building a Project Near the Portsmouth Navy Yard to Provide Homes for Five Thousand Workers—Distributing Railroad—Central Concrete Plant—Concrete Delivered by Tractors—Progress Clock.

On November 11, when the armistice was signed, the U. S. Housing Corporation had under construction, or at least under way, 89 projects for furnishing houses for war workers. Of these, 55 were at once abandoned, 14 were curtailed, and only 20 were continued as planned. Canceling of some of these for which had been estimated an expenditure of over seventeen million dollars was done at a loss of about four million; others totaling about five and a half million were canceled without loss; while the curtailing of the fourteen saved about six mlilion dollars.

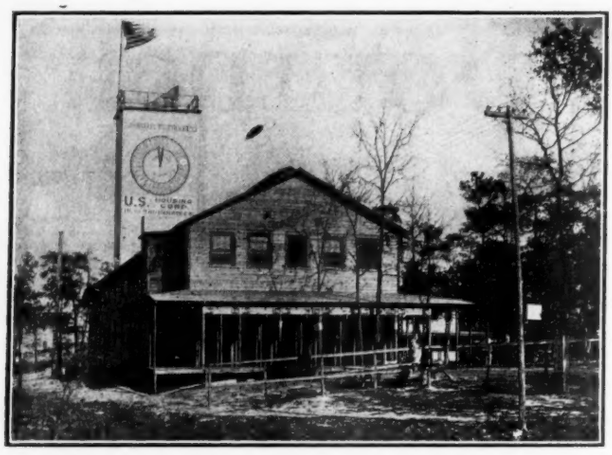
Some of the projects were designed to fill not merely war needs, but peace ones as well. Among these is the one known as Cradock, Va., which is being built over the Portsmouth Navy Yard. It is estimated that the permanent post-war requirements of the Army and Navy in this vicinity will make permanently serviceable a large part of the original plan for housing five thousand people. Between May 1, 1917, and January 1, 1918, about 20,000 persons were brought to this section by the needs of the Navy Yard, the Naval Operating Base at Hampton Roads, the U. S. Magazine, the Pig Point Ordnance Stores, Tanners Creek General Stores, the Engineers' Depot at Norfolk and the N. & W. R. R pier.

The site of Cradock is an area of 450 acres of farm land, on Paradise Creek, and reached by the Virginian Railroad and the Gilmerton branch of the Virginia Railway & Power Co. The construction was let to the Hegeman-Harris Company of New York City, which on December 12th had twelve hundred men at work on 463 houses and the utilities. There are fifty distinct designs of houses, single and double, ranging in size from four to eight rooms. Provision is made for a town hall, post office, stores, etc., built around a town square. So far as possible, building operations have been so conducted as not to injure standing trees or require them to be cut down, all trees being boxed to prevent injury and fences being placed around important sections. In addition, young trees will be planted along boulevards, parkways, and streets to supplement present standing timber.

A boulevard system encircles the city, which intersects broad parkways running through the center of the city. The residence streets will be fifty feet wide, all curbed and drained. A complete sewer and



CENTRAL CONCRETE PLANT SERVING THE ENTIRE PROJECT.



PROGRESS CLOCK TELLS RATE OF PROGRESS.

water distributing system is provided, the main sewer being 30 inches diameter, and a 16-inch main bringing water from the Portsmouth pumping station. Fire hydrants are provided at each street intersection.

Engineering work on the site was begun on August 7, 1918. The engineering work has been in charge of Hill & Ferguson of New York. The general and architectural plans were prepared by George B. Post & Sons.

The contractors carefully planned their operations before starting work, and have adhered to the system adopted, although from time to time additional labor-saving devices have been put into use. Three miles of steam railroad, with switches and sidings, were used for distributing materials, so located as not to interfere with permanent construction and so planned that material is delivered near the spot where it is to be used. This railroad system connects with the Virginia Railroad. The main line runs through the center of the site and forms a complete return loop. An average of 30 freight cars of material was received daily, and the number has reached 58.

Supplementing the railroad, the contractors used numerous trucks, tractors and horse-drawn wagons. One novelty that was used extensively was the small caterpillar tractor, which was used for drawing plows, hauling concrete and loads of material over rough ground as well as on roads, and pulling down trees.

The temporary structures, most of which were built before the permanent work was begun, included a central office building, storage buildings, saw mill, barracks, and canteen and mess hall for white workers and others for the colored workers. The barracks are heated, and have running water and shower baths. In a "welfare office" records are kept of all the men on the job, and first aid to the injured is adequately provided for.

As a stimulant to speed, the contractors erected a tower on their office building on which was painted a large progress clock, the hands being painted red and black respectively. The black hand was set each day to indicate the state of completion that it had been estimated should have been reached, the red hand to indicate the point reached by the actual progress. This clock is visible from all parts of the work.

The foundations for the buildings were built of concrete, each house foundation taking on the average 10 cubic yards. Instead of using several small mixers and bringing the aggregate and cement to them, the contractors erected one central mixing plant, in the center of the grounds, one advantage of which was reduction in the number of laborers required. This plant has a capacity of 250 cubic yards a day. The mixer itself is elevated above the ground so as to discharge directly into carts or trailers. Above the mixer are the bins for aggregate, which are filled by derrick from piles of aggregate on the ground near by. On a level with the bottom of the bins and above the mixer is a working platform. By special bin outlets the aggregate is measured and discharged directly by gravity into the mixer. The cement is stored in a building alongside the mixer and is delivered to the working platform by a bag elevator. The plant is operated by electricity.

The concrete was delivered to the forms in carts that

A VIEW OF A PART OF THE WORKS SOON AFTER CONSTRUCTION BEGAN.

SMALL CATERPILLAR TRACTOR HAULING CONCRETE ACROSS FIELDS.

had inclined bottoms and discharged through a sliding door and short chute, each cart holding about a cubic yard. These carts were hauled by small "Cleveland" caterpillar tractors that looked little larger than toys, but could haul two carts each over a fair road at a speed considerably greater than that of a draft horse.

By December 12th ten million feet of lumber had been delivered on the job. A saw mill was used for cutting all frame timber, exterior and interior trim and other pieces, so that practically no hand sawing was necessary. This mill cut the lumber for twelve to fifteen houses a day. In handling the arriving lumber it was unloaded from the railroad cars onto temporary platforms, and from these loaded easily onto the motor trucks, thus avoiding the necessity of keeping either cars or trucks waiting, as is necessary a considerable part of the time when unloading cars directly onto trucks.

As an illustration of the speed attained, foundations for a group of seven apartment buildings, totaling 104 four-room apartments, were begun on October 23rd, and on November 10th one building was completed with plumbing, running water and electric lights installed and the apartments ready for occupancy; while all the others were practically completed the same day, so far as construction work is concerned, and turned over to the plasterers, plumbers and electricians. This group of apartments surrounds a well-wooded court for the use and pleasure of the tenants.

MUNICIPAL PEACE READJUSTMENT*

How American Cities Are Planning to Solve This Problem—Public Works Which Will Be Constructed—Opinions of Municipal Officials.

At the annual meeting of the conference at Newburgh last June President Stone was authorized to appoint a committee to study what New York State cities can do to help in the economic rehabilitation after the war, and to make recommendations not later than the next annual meeting. At that time it was the consensus of opinion that the committee would have all the year in which to make its study. The enemy of Democracy, however, collapsed much sooner than most of us anticipated. As a result America has had to face about and tackle readjustment problems at a much earlier date than it had expected it would. As soon as the armistice had been signed, therefore, the chairman of your committee requested the State Bureau of Municipal Information to seek the opinion and advice of the mayors of American cities about the work that municipalities should and can do to assist the nation and the state in a return to a peace basis.

From the replies the bureau received we have selected those from the mayors of fifty American cities, representing every section of the United States, and all sizes of municipalities. We believe that by presenting a summary of these replies we can best enlighten you on the manner in which American municipalities are planning to solve readjustment problems.

In its letter to the American mayors the bureau first asks what municipal readjustment plans the city had already adopted or was considering. Its second inquiry was as follows: "What, in your opinion, can and should American cities do to assist the nation and state in their readjustment work?"

Only a few cities replied that, because of limitations on their borrowing capacity or budgetary expenditures or because of serious financial problems confronting them, they will this year be able to undertake no extraordinary construction work. Following are the undertakings which the others either have already decided to carry out or are considering:

San Francisco.—City will spend $250,000 to improve Hetch Hetchy water supply and power system and municipal railway; $500,000 to be spent on unpaved and unaccepted streets; $3,000,000 for school and civic center buildings, and $500,000 on service construction.

San Jose.—Road and bridge construction.

Harrisburg.—Development of park, construction of bridge over railroad tracks, erection of million dollar memorial bridge, improving subway.

Wheeling.—Install filtration plant, build bridges and improve streets.

Canton.—Increase water supply and distribution system, build two main trunk sewers, improve streets, improve new territory.

Ft. Wayne.—Develop three new parks, track elevation work, pave many streets and build sidewalks and sewers.

Kingston.—Erect some small buildings, improve streets, parks and playgrounds and eliminate grade crossings.

Binghamton.—Large amount of paving and sewer work.

Worcester.—Street paving, girls' trade school, enlarge hospital, memorial auditorium, enlarge water reservoir.

Spokane.—Reopen public works propositions postponed on account of the war; build municipal auditorium and more efficient general public market.

Dayton.—Will spend $360,000 for street and sewer improvements and water works extension. May call special election to vote on $2,000,000 bond issue for public improvements.

Trenton.—Complete tuberculosis and general hospital, erection of venereal hospital and clinic headquarters, erect municipal sanitary station and public comfort station, complete municipal dock, construct warehouse and other structures co-related with Delaware river deepening project, acquire ground for public market center, erect soldiers' memorial either in the form of a monument or community hall, extend and improve public park system, extend lighting system, motorize fire department, extend sewers, repair and pave streets and extend water system.

Austin.—Complete sewage disposal plant and power dam.

Tulsa.—Reconstruct water works.

Davenport.—Extensive program for street paving and grading.

St. Louis.—Building projects, street paving, sewer construction, bridges and viaducts, grade crossing eliminations, parks and playgrounds, memorial municipal auditorium and convention hall; asking for bond issue of $22,000,000 for the work.

Oneonta.—Thorough and systematic study of progressive city planning with well defined objectives in view. This will include city government and city improvements, such as permanent street improvements, park development with recreation features, industrial advancement, sanitary housing and sewage disposal.

Lynchburg.—Street and sidewalk improvements, sewer construction, establishment of small parks and playgrounds and erection of a municipal building.

Easton.—Construct wharf, extend heat pipes, open and grade streets, street crossings, improve lighting system, parks and storm sewers and erect comfort station.

Cambridge.—Proceed with all necessary construction work possible that was postponed on account of the war.

Glen Cove.—Number houses and reconstruct sidewalks.

Lynn.—Street and sewerage improvement work.

Ogdensburg.—Street paving work.

Cedar Rapids.—River front improvement, construct large concrete bridge, resurfacing streets, suitable memorial for soldiers.

Buffalo.—Erection of intermediate school buildings, erection of municipal office building, municipal ownership of railway system, creek improvements, construction of sewers, street construction and reconstruction, construction of viaducts, river improvement, construction of docks, yard for all street repairs, construction of boulevard and roadway, improve water system, electrification of street lighting, construction of dock wall, reconstruction of bridges, street widening, street car facilities, comfort stations, filtration plant, by-product coke oven plant for production of gas.

New Rochelle.—Build public dock and new road and repave a number of streets.

Passaic.—Laying permanent pavements and repairing buildings.

Syracuse.—New school houses, improvement of sewer system, new street pavements, creek improvement and sewage disposal plant.

*Report to January 22d meeting of Conference of Mayors and Other City Officials of the State of New York, by Mark I. Koon, mayor of Auburn, chairman of Committee on Economic Rehabilitation after the War.

Lorain.—Enlargement of water works plant and extension of system, improvement of park system, establishment of playgrounds, paving of streets, memorial hospital.

Cincinnati.—Building in new quarters and reconstructing considerably in old quarters.

Muskogee.—Improve water works, build hospital and improve streets.

Pittsburgh.—Improvements of various kinds.

Cleveland.—Construction of water reservoir, filtration plant and pumping station, installation of water mains, extension of light and heat, new bath houses, recreation pier, wholesale farmers' market and warehouse, swimming pools, waterway improvements, dance hall, boat houses, golf club house, city park, paving and sewering, new traffic laws, garbage collection sub-stations, straightening of river, enlarging city hospital and tuberculosis sanitarium, construction of children's tuberculosis division and girls' home at city farm, enlargement of correction farm, construction of civic center, new engine houses.

Seattle.—Building a hydro-electric power plant, addition to water system, and many street improvements.

A study of these reports shows that the slogan of American cities this year will be "progress." Almost every city is planning to proceed with construction work postponed on account of the war, and many in addition will initiate and make new public improvements. Many cities are preparing to erect memorials, and it is a noticeable fact that most of these will be memorials of a substantial character that will perpetuate not only the deeds of our heroes, but also the ideals for which they fought. Another important part which the American city is planning to take in the solution of readjustment problems is that of the social welfare. It is encouraging to note the number of municipalities which are awakening to the importance of community social service work. The problems of food supply, transportation, health, public safety, housing and education are also included in the programs of several cities. There is every indication that the greatest progress in their history will be made by American cities within the next few years.

The committee has selected the following opinions to indicate what American city officials believe municipalities should do to assist the nation and state in a return to a peace basis:

Mayor Galvin of Cincinnati.—"The opinion of the administration is that American cities should, when opportunity arises, do all things possible for the Nation and State in the line of reconstruction, or in any other way. Really, we are all one, whether we live in one part of the nation or another. Our right to travel and enjoy that which is about us, really makes for two phases of citizenship—the local and the non-resident. There is inherent in each of us a certain sense of responsibility for the maintenance of good governmental substance and functions, whether divided into municipal, state or national defense."

City Manager W. C. Bailey, San Jose, Cal.—"I thoroughly believe that all possible work should be provided at this time so that we can absorb all unoccupied labor."

Mayor Palmer Canfield, Jr., Kingston, N. Y.—"It is my opinion that cities can assist in the reconstruction work by carrying on to the fullest extent the character of the work above outlined (public work) and also by the maintenance of real public markets where farm and poultry produce and fruit will be received and paid for at market prices which will tend to cause the farming districts to be developed to a greater extent and also cause unused farm lands to be utilized."

City Engineer W. Earl Weller, Binghamton, N. Y.—"It is my opinion that the cities should assist the state and Federal Government in taking up the slack which is bound to come in the labor situation. This assistance can be most advantageously given by proceeding with public works."

Mayor Samuel A. Carlson, Jamestown, N. Y.—"The American cities should be empowered to undertake any project in the way of utility service which will reduce rates and improve service. All the constitutional and taxation restrictions which are now a handicap upon cities should be removed. The city governments acting in a representative capacity should petition the State and National Government to immediately inauguarate reconstruction reforms, such as minimum wage standards, abolition of child labor, pension provision for old age, and procuring available lands for returning soldiers for agricultural purposes, a universal reduction in the hours of labor to prevent unemployment, the abrogation of all restrictions which prevent the freedom of conscience and public expression, in order that our nation may be free from the evils of anarchical violence which is the outgrowth of autocratic repressive measures carried out by tyrannical governments of the old world. The traditional polities of freedom of speech should be safeguarded in order that we may preserve American Institutions."

First Deputy City Clerk E. D. Miller, Providence, R. I.—"A joint special committee of City Council has just been appointed to consider and recommend relative to all branches of the subject."

Mayor Charles M. Fassett, Spokane, Wash.—"While I feel that the great civic progress which will come from the successful close of the war must be largely the result of national rather than of municipal activities, yet I am sure that municipalities can do a great deal, largely along the line of city planning proposals which most cities have been considering for some time. Every city should see to it that the new time shall mean better living conditions for its citizens and make an earnest and unselfish effort to promote the health, happiness and well-being of its people."

City Manager J. E. Barlow, Dayton, O.—"We believe it absolutely advisable to stop making war materials of little or no use after the war and turn the labor and material into work that will be of permanent value. It is likely that better prices can be secured later which may make private capital hesitate and so public improvements should logically be undertaken at once to bridge over this uncertain period."

Mayor Frederick W. Donnelly, Trenton, N. J.—"I believe it is highly essential from an economic standpoint that as much public work be released as is possible within the next few months during the time that the country is passing from a stage of abnormal war-work employment to normal business and industrial conditions. In order that there may be plenty of employment during this interim of readjustment, I believe that the cities, the various States, and the Federal Government itself should give impetus to as much public construction work as is possible. In order that such a program of construction may be unhampered in any form, I would favor the abolition immediately of the Capital Issues Committee and any other restrictive agency that would have the power to hold up or hamper this reconstruction program. * * * Every municipality should co-operate in endeavoring to bring economic and industrial conditions to anormal stage to the end that the reconstruction period following the great war will make a new era in national achievement and prosperity."

Mayor A. P. Wooldridge, Austin, Texas.—"My opinion is that the municipalities of the country should start and carry out as many public works improvements during the next few years as their needs urgently require and as they can advantageously finance."

Mayor Charles H. Hubbard, Tulsa, Okla.—"We feel that all of the cities of America should be interested in the readjustment and the demobilization of our great army into the producing class at a profit. These young men are full of life, vigor and energy, and they are ambitious and can be placed in the industrial pursuits wherein and whereby their ambitions can be satisfied and their ideals worked out for the betterment of themselves and the community of which they form a part.

"The municipalities, we anticipate, will have to take a broader view of this matter than will be found within the confines or boundary lines of their respective municipal governments. They will have to aid the county and the state in placing these men in the mine, factory and farm, each to the place where he can do the best, and I feel that the greatest of the questions to be determined is not so much a question of employment of idle labor as it is a question of the ability to pay.

"We feel, however, the urgent necessity of taking care of all of the idle labor in the community, for only in this way, as we view it, can we avoid the dangers that follow in the wake of the I. W. W.'s or the Bolsheviki."

Mayor C. M. Littleton, Davenport, Ia.—"I am in favor of going so far as to bond the city in order to furnish work for workingmen during this period of reconstruction * * * It is our duty to see that the men have jobs and this is the only way that the city can do it."

President, Board of Public Service, E. R. Kinsey, St. Louis, Mo.—"A great reconstrution already has taken place. A reconstruction of the spirit of co-operation of the people which has brought about a unity of purpose, and a co-operation in action in the prosecution of the war far beyond what any one thought us capable of attaining.

"Is this habit of co-operation to be allowed to die out now that the war is over? It seems to us in St. Louis that the utmost efforts should be made to foster and maintain this spirit in working out problems for the common good in municipalities and states."

Mayor Royston Jester, Jr., Lynchburg, Va.—"It is my opinion

that the American cities should begin to make improvements during the early part of the coming year so as to assist the Federal Government in solving some of the problems which will necessarily arise during the reconstruction period."

Mayor James E. Burns, Glen Cove, N. Y.—"Our opinion in assisting the state and nation in its reconstruction work, is to furnish employment for our boys immediately upon their return from war service, and to see that they are given positions. When any municipal work is going on, it will be our aim to give our returned soldier and sailor boys preference in that sort of employment, and also will act upon suggestions from our state or nation in order to co-operate with them along readjustment lines."

Mayor J. F. Rall, Cedar Rapids, Ia.—"In my opinion the construction of memorials on the late war should be in the form of buildings or other public works of general utility. In this connection the large concrete bridge mentioned above has been urged as a suitable structure with which to incorporate something of this kind. This community is also in need of a municipal building which might also be developed along this same line with memorial features."

Mayor James Saul, Dubuque, Ia.—"Closer co-operation is needed before anything can be accomplished."

Mayor Frederick H. Waldorf, New Rochelle, N. Y.—"It is our duty as a municipality to commence work so as to set an example for private interests, and give our young men employment while they are looking around to take permanent positions."

Mayor Walter R. Stone, Syracuse, N. Y.—"I think the municipalities should proceed as soon as possible with all of the work deferred in the past two years, provided the Capital Issues Committee does not intervene to prevent the acquisition of necessary funds."

With this presentation of the consensus of opinion of American cities your committee believes it has pointed the way for the cities of New York State to aid in the readjustment problems. The labor problem is the most pressing at this time. The cities, by carrying out as many public improvements as their needs require and they can advantageously finance, can help greatly to prevent unemployment while our industries are readjusting themselves to peace conditions. In planning these improvements, however, every city administration should bear in mind the advice of the mayor of Spokane: "Every city should see to it that the new time shall mean better living conditions for its citizens, and make an earnest and unselfish effort to promote the health, happiness and well-being of its citizens."

PAVING IN WINNETKA.

In his annual report published in 1918, H. L. Woolhiser, business manager of the village of Winnetka, Ill., described the method of improving the macadam streets of the village. All of these were resurfaced with tarvia.

"The first step was to make a personal canvass of property owners on streets selected for resurfacing. A considerable portion of the frontage was secured in this way, at a cost of 1 cent per front foot signed. Out-of-town owners, and persons whose signatures could not be obtained otherwise, were mailed a form letter over the signature of the village president, setting forth the nature of the work proposed and explaining the economies to be secured by a payment of 15 cents a front foot, rather than $4.00 or $5.00 a front foot through special assessment proceedings for a permanent-base pavement. As a result of this campaign, about 85 per cent of the total frontage was signed.

"Before the construction season closed, we were able to complete 5.8 miles of this work, the total cost for which amounted to $18,986.07. The average cost per running foot was 62 cents, or 37 cents per front foot of abutting property. Of the total cost above stated, $6,-284.10 was subscribed by property owners, or approximately 33 per cent. The net cost to the village was about $13,000.00, as compared with $6,000.00 for the previous year.

"As a result of the season's work, the streets covered are in first class condition and, where traffic is not too heavy, will not require resurfacing for at least two seasons. It is expected that on streets which receive heavy automobile traffic, a light application of tarvia should be made each season.

"In conjunction with the policy of resurfacing, there was also put into operation last year a patrol system for periodically inspecting and promptly repairing defects on tarvia macadam streets. This work served to maintain the resurfaced streets in 100 per cent condition, and showed a considerable decrease in maintenance costs as well."

WATERWORKS OPERATION RESERVOIR MAINTENANCE.

Forestry on Catchment Areas—The Advantages, Methods and Costs—Some Figures and Results from Practice.

FORESTRY.

Most waterworks companies or departments that obtain their supplies from surface reservoirs own more or less land around such reservoirs. It becomes a question, then, what treatment of this land will be best from all points of view.

The most important consideration is the effect of the treatment upon the quantity and quality of the water supply itself; but aside from this, there are possibilities of securing an income from the land, and of so treating it as to give pleasure to the citizens, either as a part of the scenery or as a recreation or outing area. It is believed that all of these considerations point to the advisability of scientific forestry as an established feature of the maintenance of the catchment area.

Most of the forestry which has been conducted by water companies or departments has been in the northern states, especially in New England, although it is by no means confined to this locality. For instance, the St. Paul water commissioners have for some years been reforesting the watershed of Lake Vadnais under the direction of the College of Forestry of the University of Minnesota. In New England forestry work has been undertaken by the water departments of Fall River, Westfield, Holyoke, Fitchburgh, Needham, Milford, Pittsfield, New Britain, New Haven, Hartford, Nashua and many others.

As has been stated before, trees around the reservoir help to prevent evaporation from water and land surfaces by diminishing the velocity of the winds that blow across it. They also cool the atmosphere by the shading of the ground and by the evaporation from the foliage, which slightly decreases the temperature of the water, making it more palatable; and this coolness also lessens evaporation. The leaves falling upon the ground form a mat which protects the soil from erosion, while the roots help to hold the soil in place.

An objectionable feature where the land immediately around the reservoir contains deciduous trees is the blowing of leaves into the reservoir. In the northern states this can be prevented by planting coniferous trees, the leaves of which are not blown about by the wind. These trees offer the further advantage that the foliage remains all winter, and in spring prevents the thawing of the snow by sun, thus prolonging the run-off from the catchment area at a time when the reservoir is filled by spring freshets, thus increasing the amount of run-off stored. Where deciduous trees are already found growing around the reservoir, the leaves can be prevented from reaching the water by planting along the shore a continuous screen of arbor vitae or some other bush which furnishes a dense hedge from the ground up and does not itself shed an

abundance of leaves. Such a hedge will collect behind it a very large percentage of the leaves blowing from the trees. For protecting the Wachusett reservoir of the (Boston) Metropolitan waterworks, a continuous compact screen of arbor vitae was set out along thirty-two miles of the shore. Two rows of trees, the rows two feet apart and the trees three feet apart in each row, were set out and have grown to a height of twelve feet or more and form a solid bank which catches the foliage from the hardwood trees.

If there are no trees on the land it will, unless unusually poor or arid, grow up to brush or wild vegetation of some kind unless put under cultivation. Since the use on the land of fertilizer, which may be washed into the reservoir, is not to be considered, the only crop that can be raised would appear to be hay, and a number of water companies and departments use considerable areas of their catchment areas in this way. In time, however, the land will run out unless fertilized, and it will no longer be profitable to attempt to grow hay upon it. The alternative then, even with this land, must be to allow it to run to brush, or to stimulate the growth of trees upon it. Land so allowed to run to waste is truly waste land and, while in the newer sections of the country, where there is so much uncultivated land, this may not furnish any argument, the fact remains that by planting such area to trees it may be possible to insure a future income from the land, at the same time adding to its sightliness and the possibility of its use as a recreation ground.

If forestry would be profitable for any one, it would seem to be so for a water department, since it already possesses land which can be used for no other purpose and on which as a rule it pays no taxes; also because a municipality has a longer life than an individual and can better afford to wait a number of years for returns upon its investments. It was reported a few months ago that the New Haven water company, in the nine years previous, had obtained $37,000 for the wood cut from its catchment area, and from this had paid out all of its expenditures for forestry work and forestry improvement, and had in addition over $8,000 credited to the forestry account. It is the fixed policy of the New Haven company to plant about 250,000 trees a year. The comparatively small city of New Britain has purchased 37 acres of land in the six townships into which its catchment area extends and is systematically clearing this of all deadwood and brush. In 1918 it reported that a large part of the land was already well covered with large, healthy trees, furnishing an excellent protection to the watershed and that all open land is to be planted with pines and other varieties, 20,000 trees already having been set out and 30,000 having been purchased. The expenditure on forestry work during the fiscal year of 1917-1918 was $248.20, while there was received from the sale of wood $456. The wood so sold was merely that obtained by clearing off the land and is no indication of what will be received from the timber which is now being grown.

A few years ago the state forester of Massachusetts, F. W. Rane, made a calculation of the profits from the forestry conducted by the Metropolitan Water Board of that state. The board had planted 1,200 acres of land with pine and hardwoods at an average cost of $20 an acre. During the first ten years following they had to spend $6 an acre for improvement cutting and about 25 cents per acre per year for fire patrol. It was believed that these trees will yield 46,500 feet board measure per acre when fifty years old, the value of which at that time was $465, but will probably be considerably more than this when they are cut. Using the value of $465, however, and allowing for interest compounded on the forestry costs, Mr. Rane calculated a net balance of $290 profit per acre.

Another advantage of forestry is that a large part of the work, including the clearing out of the undesirable timber, planting new trees and the cutting of full-grown timber, can be done in the winter time when the men who were on the payroll during the summer must either be discharged or kept at unprofitable work, the waterworks force thus being retained throughout the year at profitable employment. It is suggested that if it is not desired to retain them at a salary, some of them can be employed at cutting hardwood by the cord. Since the catchment areas are generally near cities, there is generally no difficulty in finding a market for the wood.

In a few cases water power has been available on the stream below the intake or dam sufficient for the running of a sawmill during high water, and it has been found feasible and profitable to locate sawmills at such points, where employes of the waterworks can saw into lumber trees cut on the catchment area. In most cases, however, it has seemed to be preferable to sell the lumber to sawmills, and some companies or departments have preferred to sell it standing, claiming that their employes, inexperienced as lumbermen, could not earn their wages at lumbering.

For northern sections, at least, soft wood is much preferred to hard wood for forestry purposes. Hard-wood land does not retain water so well as soft-wood land, and the evergreen soft-wood trees retain the snow on the ground longer, keep the air under them cooler in summer, the mat of needles on the ground keeps the frost out of the soil, and not so much moisture is evaporated from their foliage as from hardwood trees. In New England the white pine seems to be considered the most desirable tree for this purpose, although a few years ago the weevil did considerable damage to these trees in certain sections. In general, however, the white pine is not attacked by pests. It grows vigorously in light, sandy soil and gives valuable timber. After the trouble with the attack of the weevil upon white pine, a number of cities began planting red pine, which is said not to be attacked by it. Scotch pine was planted by New York on poor soil on its Croton watershed. It is not so valuable commercially, but it is hardy and has a longer tap root. The Norway spruce does best in fairly good soil, but grows better than most coniferous trees in moist grounds and is, in fact, noted for its hardness and adaptability to any soil.

In planting trees as a commercial enterprise, especially pine and similar trees, close planting is recommended in order to secure straight stems and a small number of knots. Where land is open, pines and other conifers are planted about six feet apart.

It will not usually pay to clear off land covered with second growth or brush, but the young trees on such land may be permitted to grow until large enough to cut for fuel, and when so cut the area can be planted to conifers. The sale of the scrub wood for fuel will usually pay for cutting it and clearing the land. Where areas are already growing to good hardwood timber, these can be thinned out periodically and kept in a healthy condition, the material so cut paying for the cost of removal. All over-mature timber and trees of no considerable value as lumber should be cut out as rapidly as possible and the areas so cleared planted to pines or other wood of greater value. All of this will of course take time, but forestry is a matter of time and cannot be hurried. Meantime the hardwood growths can be under-planted with white pine seedlings two or three years before they are to be cut, so that when they are removed a pine plantation has already been started.

The whole matter of planting should be systemized from the beginning. First, a survey should be made of the entire catchment area, by which is ascertained the kind and condition of all trees or brush growing upon the land, and the nature of the soil in its bearing upon the kind of tree most suitable for raising upon it. The aim should be to gradually bring the entire area to such condition that there will be a continuous succession of trees of commercial value coming on at all times, a certain number of which will each year reach the size most profitable for cutting and be replaced by others of younger growth. It is considered profitable to cut pine trees when they are forty years old, but it will generally be more so to wait until they are fifty years. At fifty years of age a pine should be 14 inches in diameter and 60 feet high and produce 46,000 board feet per acre.

Trees to be used in reforesting can be obtained from state forestry departments in a number of states, either at no cost except transportation, or at comparatively small cost. A number of water departments and companies, however, raise their own seedlings. About a year ago the superintendent of the Metropolitan Waterworks reported that they had two large nurseries containing about 400,000 pine trees, half of which would be ready to plant in the spring of 1918. In the spring of 1908 29,300 three-year-old white pine seedlings, which had been one year in seed beds and two years in the transplant beds, were planted six feet apart. The cost of raising these in the nursery had been $205, planting in the field had been $230, the first protective clearing three years later cost $330, and a second protective clearing four years after that cost $304. These trees were planted on land which had been cleared of very rough scrub, sprout and weed grass at a cost of about $14 an acre, about half of which was recovered by the sale of cord wood. This gave a total cost per acre for trees ten years old of $40 or a little over four cents per tree. Another planting in a pasture land where there was no preliminary clearing cost also about four cents per tree, including protective clearing. At Kensico reservoir, New York City planted over 800 acres with three-year-old transplants which cost $4.41 per thousand plus 43 cents freight. Labor in handling for inspection, teaming and planting cost $6.30 per thousand, and supervision 74 cents, giving a total cost per thousand of $12.38. Toward the end of the season the men had become sufficiently expert to plant about 500 trees per day per man. In another case the New York Water Board purchased three-year-old transplants and cultivated them for three years in a nursery, when they were from three to five feet high, and their cost then was about $60.52 a thousand; 26,000 of which trees were planted in permanent location at a cost of $73.91 per thousand for all labor, supervision, transportation, etc., giving a total cost for the six-year-old trees of 13½ cents each. These New York costs do not include clearing. In another instance trees were set out by contract at a little less than $26 an acre, 1,250 trees to the acre, that were guaranteed to grow, and the contractor is said to have made a profit.

The young trees having been planted, they must be protected from fire and from insect pest as far as possible. While they are young the land around them is likely to grow to grass or weeds and these cannot be cut without destroying the young trees also. When the grass dies in the fall and dries, the danger of its being set afire is a more or less serious one, and it is desirable to have guards patroling the area at all times, but especially on Sundays and holidays. In order to prevent the spread of fire either in the growth around the young trees or in the matured trees, it is very desirable to furnish fire breaks if the woods cover any considerable area. In a number of cases these breaks serve the additional purpose of acting as roads for giving access to all parts of the catchment area. For grown or half-grown trees such fire break to be effective should be forty or fifty feet wide, and all vegetation should be cut from it every fall and burned in piles under supervision. No tops or trimmings of trees should be allowed to collect at any point on the area, but all should be piled and burned or hauled from the area and otherwise disposed of.

In the matter of insects, little can be done where the trees are numbered by the tens of thousands except to endeavor to select varieties which are least subject to attack by insects and also clear out any individual trees of varieties subject to such attack, since many insects will pass from trees which seem to be their natural choice to trees of other species if they are in the immediate vicinity.

FRENCH ROADS AND THE WAR.

Transportation by Truck for the American Army Has Made Necessary Resurfacing Hundreds of Miles of Road—Equipment and Men Needed.

By E. A. KINGSLEY.*

From August, 1914, until the Spring of 1917, the first two and one-half years of the great war, practically all of the energy of the belligerent nations was expended in the north of France and Belgium. A line drawn west from Nancy, through the southern boundary of Paris, to the coast, would represent nearly the southern boundary of all the activities.

The British troops were trained in Great Britain and then sent to France. French troops trained in the south of France were transported by rail to the "zone des armees." Colonial troops were landed as near to the scene of conflict as possible and hurried to the front. In the whole of central and southern France, conditions were not materially changed. Excepting for the scarcity of men and the predominence of men in uniform, one would hardly know that a war was on.

And even north of the imaginary Nancy-Paris line, most of the transportation was by rail. Germany had stolen thousands of the best French and Belgian locomotives and tens of thousands of their cars. But travel and shipments, excepting for military purposes, were almost suspended. Consequently the loss to Germany was not so keenly felt at that time.

After the United States entered the war in 1917, conditions began to change. In the summer, troops began to arrive and before winter central and southern France was given over to the United States Army. Literally it became America.

Then came transportation troubles. From the base ports to the front extended railway lines of communication approximately 600 miles in length. But the railways could not cope with the problem of hauling troops, equipment and provisions. Cars were not to be had in sufficient numbers and the railroad yards were not able to handle the trains fast enough to keep the ports clear. Immense storage depots had been established and were being stocked at a number of points. From these, in every direction, went out daily, equipment, material and subsistance supplies.

Army officials had early foreseen the difficulties. They had also knowledge of French road conditions and thousands of automobiles and trucks had been ordered. In addition to the already over-crowded railroads, auto and truck lines of communication were established from the base ports through the big intermediate section to the

*Major of Engineers, A. E. F.

front. During the year 1918 thousands of trucks and cars operated over these French roads and millions of tons of American freight have been transported. Had it not been for the wonderful French roads, the first battle of the Marne would never have been fought. Instead, the Kaiser would have dined, as he had planned ahead, in Paris. And the immense German flag which was specially made for the purpose would have floated to the breeze from the great Eiffel tower. Only because of the French roads, too, was America able to keep such a wonderfully big army so far away from home.

Most of the roads of France are of the waterbound macadam type, limestone predominating in their makeup. Near the larger cities and in the cities and towns considerable "pavee" or stone block has been used. In more recent years, quite a little tar surface work has been done.

The upkeep of the roads has been almost entirely hand maintenance. Even the stone has been very largely broken by hand. With the call to arms, this system became difficult to operate on account of labor shortage. Maintenance, therefore, has been confined almost entirely to keeping the drainage ditches open and the dangerously bad holes repaired.

During the first few months of 1918 the roads used by the American forces were in almost perfect condition. During the summer the increasing traffic and lack of maintenance began to tell on the road surfaces. By the end of the year the main lines used were badly pitted and in many places very rough. The surfaces are well worn and hundreds of miles of macadam must be re-surfaced.

Practically no work has been done on the tar-surfaced roads during the war. Tar products have been very scarce, and as the roads stood the traffic quite well, no apparent effort was made to maintain them. In a few instances they have broken some and begun to ravel. But as a general thing they are in fair condition.

Stone block surfaces are all laid on a sand foundation and continuous traffic has made them very rough. Blocks have been difficult to obtain, so that repairs have been almost entirely neglected.

The proposition confronting the French engineers now is where to get the labor and equipment necessary to do such an immense amount of work. Before the war France was a country much frequented by tourists. After the war it will be much more so, both because of the things to be seen and because of the many Americans who will want to visit France in peace times. The magnificent roads of France were known the world over. Motoring was a pleasure. It is now up to the engineers to repair, as quickly as possible, the damage done and replace the roads as they were before the war.

To rebuild the many hundreds of miles of roads will require money, time and much work. Most of the equipment used in the various departments has been taken to the front. A great deal of it, of course, has been damaged beyond repair, destroyed or worn out. All this must be replaced. Then, too, new methods must be adopted. The macadam roads are not suited to continuous auto traffic. It is very probable that other than waterbound macadam will now come into more general use. In fact tar-surfaced work was coming into quite general use when the war temporarily put an end to it. As in America, labor-saving devices and machinery and modern road construction methods will supersede the older order.

The entire road system, including the stone quarries, has been mobilized during the war. Most of the department engineers have been army officers. The chief of the road service in Paris has been the man in absolute control. American road engineers will remember him as M. Mahieu at the International Congress. He is now Col. Mahieu, "Inspector General des Ponts et Chaussees, Chef du Service des Routes Militaires." The colonel has been one busy man. It was his job to have to shoulder all of the burdens in connection with both civil and military roads, and to supply material and equipment for them.

But another big problem is now before him. Largely upon his judgment must rest the decision as to methods and means to be adopted. It is fortunate indeed that France has as big a man as Colonel Mahieu at the head of the "Service des Routes." Fortunate indeed, too, that he is a man of knowledge and experience.

TREATMENT AND DISPOSAL OF CREAMERY WASTES.*

Settling Tank and Sand Bed Designed and Tested by United States Public Health Service Gives Satisfactory Results.

By EARLE B. PHELPS.†

An experimental investigation of the treatment and disposal of creamery wastes was carried out during the years 1916-17 by the United States Public Health Service, cooperating with the Dairy Division, Bureau of Animal Industry, United States Department of Agriculture. This investigation was carried out at the plant of the demonstration creamery of the Dairy Division at Grove City, Pa. It was begun in October, 1915, but owing to difficulties of construction and necessity for remodeling, the actual satisfactory operation of the plant was delayed until May, 1916. It was discontinued at the end of October, 1917.

This creamery is operated under the supervision of the Dairy Division of the Department of Agriculture, and the business consists mainly of butter making. Some cottage cheese and casein are made, and other experimental work is carried on by the government, but the wastes treated consisted essentially of those from making butter. The milk is delivered by the farmers to the creamery, where it is separated, most of the skimmed milk going back to the farmers. No skimmed milk or buttermilk goes into the sewer; in fact, nothing goes into the sewer that contains any product in amounts that can be utilized as food for either man or animals.

The wastes that were treated consisted of those from washing cans and cleaning and rinsing the churns, together with a small amount of milk, cream and buttermilk that was spilled on the floors. The water used for condensing and cooling purposes and all exhaust steam were discharged into a separate sewer direct to the creek and were not treated with the other wastes from the creamery.

The experimental disposal plant consisted of a septic tank, an Imhoff tank, and two sand filters. Difficulties were had with the Imhoff tank, owing to imperfect construction work and leakage, leading to a considerable odor about the plant, so that this tank was not actually used during the investigation.

*From "Public Health Reports" of the U. S. Public Health Service. This investigation was in immediate charge of Sanitary Engineer H. B. Hommon, United States Public Health Service, who is responsible for its general plan and direction. He was assisted in the design and construction by Sanitary Engineer H. R. Crohurst and, during the period of operation, by Sanitary Chemist H. P. Corson, in resident charge. L. A. Rogers, bacteriologist, in charge of Research Laboratories, Dairy Division, cooperated throughout and lent helpful assistance. The work of preparation of a complete report was interrupted by the advent of the war, and Mr. Hommon is now serving in France as a captain in the Sanitary Corps, United States Army.

†Professor of Chemistry, Hygienic Laboratory, United States Public Health Service.

In May, 1916, the plant was put in operation, the sand filter being operated at a nominal rate of 25,000 gallons per acre per day, and the septic tank on the basis of a 12-hour storage period. The results of the operation were excellent almost from the start. During July the nominal rate of filtration was gradually increased to approximately 70,000 gallons per acre per day, at about which point it was maintained throughout the investigation. With the advent of cold weather a noticeable reduction occurred in the degree of nitrification, and a somewhat less marked effect was shown by the relative stability and oxygen demand values. The degree of purification was always satisfactory for discharge into a comparatively small volume of diluting water in cold weather, and the spring of 1917 brought with it increased biological activity and resulting improvement in quality of the effluent.

A noticeable and quite unexpected result was the complete neutralization of the characteristic acidity of the settled wastes, the average values for 18 months being 226 parts per million of acidity in the settled waste and 356 parts per million of bicarbonate alkalinity in the filter effluent. As the sand used was clean quartz sand, this change can be explained only as the result of biological activity. The accompanying tables, I and II, give the average analytical results, by months of the raw and settled waste and of the filter effluent, together with rates of operation:

The results of this investigation indicate the entire feasibility of satisfactorily treating creamery wastes. The investigation has been in no sense exhaustive, and, in particular, the advantages of Imhoff tank treatment in place of plain sedimentation have not been investigated. It has been demonstrated, however, that plain sedimentation is a satisfactory tank treatment preliminary to sand filtration, and that, with the following specifications, a disposal plant may readily be designed for satisfactory treatment of creamery wastes.

The settling tank should have a net capacity of about one day's output of the creamery. It should have one or more hopper bottoms with side slopes of 45 degrees and a sludge outlet pipe running nearly to the bottom. The total depth from water line to sludge outlet should be about 12 feet. There should be a vertical bottom baffle, extending 3 feet above the upper edge between each two

TABLE I.—Monthly averages of analyses of creamery waste, before and after treatment in a septic tank, showing removal of certain constituents.

(Analytical values in parts per million.)

Date.	Suspended solids.			Organic nitrogen.			Oxygen consumed.			Acidity.	
	Untreated waste.	Tank effluent.	Removed. Per Cent.	Untreated waste.	Tank effluent.	Removed. Per Cent.	Untreated waste.	Tank effluent.	Removed. Per Cent.	Untreated waste.	Tank effluent.
1916.											
May	552	237	57	182	106	42	2,195	1,402	36	120	634
June	333	230	31	132	115	13	1,082	429	60	131	466
July	290	249	14	76	55	28	599	232	61	...	191
August	460	276	40	76	57	25	630	236	63	...	166
September	538	329	39	98	44	55	879	315	64	...	239
October	562	278	51	58	35	40	487	182	63	...	40
November	833	271	67	106	46	57	767	201	74	236	244
December	577	325	43	84	41	51	717	216	70	132	143
1917.											
January	567	306	46	95	53	44	578	215	63	116	141
February	601	289	52	106	44	58	802	258	68	...	138
March	1,114	515	54	122	51	58	1,285	275	79	220	141
April	916	566	38	78	45	42	757	240	68	32	40
May	525	250	52	66	34	48	762	257	66	...	184
June	531	280	47	62	42	32	628	243	61	70	210
July	380	219	43	44	34	23	816	215	74	153	376
August	400	214	47	34	27	20	468	153	67	125	160
September	360	233	35	67	37	45	716	208	71	220	198
October	386	182	53	72	56	22	715	222	69	185	323
Weighted, average	517	279	46	84	50	40	782	283	64	153	226

TABLE II.—Monthly averages of analyses of creamery waste, after treatment in a septic tank and through a sand filter, showing removal of certain constituents.

(Analytical values in parts per million.)

Date.	Suspended solids.		Organic nitrogen.		Oxygen consumed.		Nitrate.	Dissolved oxygen.	Alkalinity.	Relative stability.	Rate of filtration, g.a.d.
	Filter effluent.	Removed.[1] Per Cent.	Filter effluent.	Removed.[1] Per Cent.	Filter effluent.	Removed.[1] Per Cent.					
1916.											
May	16	97.1	7.33	96.0	50.0	97.7	21.4	1.8	282	78	25,000
June	8	97.6	13.65	89.7	60.0	94.5	103.0	2.3	161	95	24,900
July	13	95.5	1.12	98.5	29.0	95.2	43.9	1.8	304	94	46,500
August	7	98.5	1.20	98.4	10.5	98.3	19.3	3.2	344	88	72,800
September	5	99.1	.27	99.7	10.1	98.9	11.5	2.9	418	79	71,100
October	16	97.2	.63	98.9	8.8	98.2	12.5	6.9	340	95	67,400
November	17	98.0	1.22	98.8	9.5	98.8	11.5	8.8	299	82	62,200
December	4	99.3	1.21	98.6	6.2	99.1	6.8	9.5	352	85	63,000
1917.											
January	15	97.3	1.62	98.3	11.6	98.0	4.4	8.5	382	55	74,900
February	29	95.2	2.56	97.5	17.8	97.8	2.3	9.4	370	30	56,200
March	33	97.0	3.52	97.1	23.2	98.2	1.8	7.7	338	32	62,000
April	52	94.3	3.20	95.9	35.0	95.4	....	6.8	439	27	62,800
May	28	94.7	4.42	93.3	28.7	96.2	8.1	4.5	377	59	72,900
June	20	96.2	4.62	92.5	13.1	97.9	22.1	2.7	422	83	.....
July	32	91.6	2.38	94.6	13.6	98.3	7.5	2.0	340	68	64,400
August	22	94.5	1.05	96.9	6.4	98.6	15.5	4.1	392	92	75,100
September	38	89.5	1.29	98.1	7.9	98.9	7.0	5.2	368	84	.....
October	69	82.1	1.98	97.2	8.4	98.8	2.7	5.1	395	43	.....
Weighted, average	20	96.1	2.47	97.1	17.6	97.7	15.9	4.4	356	71	.....

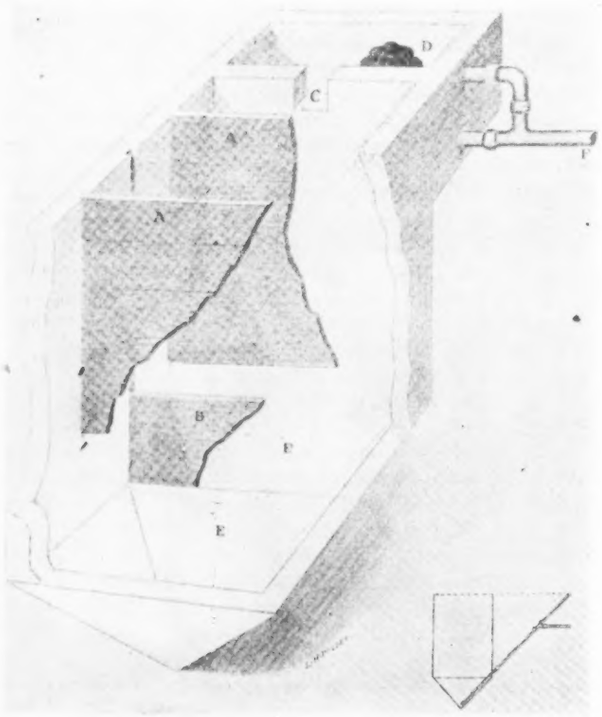
[1] Based on untreated waste.

hoppers, and scum baffles extending 5 feet into the liquid over the center of each hopper. The entire tank should be covered with a tight board cover. The effluent from the tank should overflow to a siphon chamber having a capacity of not less than one nor more than six hours' output of waste. This chamber should be provided with an automatic siphon discharging to the filter beds.

The sand filters should have an area of about 725 square feet per 1,000 gallons daily output of waste. This is equivalent to 60,000 gallons per acre per day. The upper layer should be composed of 3 feet of clean fairly coarse sand, such as would be suitable for concrete. This sand should be laid upon an underdrain system composed of parallel or radiating lines of agricultural drain tile, suitably imbedded in coarse stone graded upward to fine stone and gravel to exclude the upper sand layer. This filter should be divided into not less than 2 and preferably 4 units, with suitable arrangement for diverting the flow to one or another. The units should be used in rotation.

Intelligent supervision over the operation of this plant is essential. There will be required, first, the daily attention to alternating the doses. At periods varying from one week to one month in intervals, the filter surface may require a lighting raking. Semi-annually the tank will require attention. The accumulated sludge must be removed from the bottom, and scum from the surface. This material may be buried. In northern climates the filters will require annual preparation for winter. To this end they should be cleaned by lightly removing a surface layer of not over 1 inch, and then worked into furrows running radially from the point of application of the dose. The ridges of these furrows should project just above the water line when the full dose is applied. During cold weather they support the accumulated ice layer and permit the continued operation of the filter.

The illustration is a perspective view of the settling tank, showing all essential details. It is designed for a daily output of wastes of 5,000 gallons. The inside dimensions of the main body of the tank are 7 feet by 14 feet.



DIAGRAMATIC VIEW OF SEPTIC TANK.

The rectangular section is 10 feet deep and the hoppers, E, are 3½ feet deep. Baffles A-A extend 5 feet below the water line, and baffle B, 3 feet above the concrete ridge. The outlet C is 1 foot square. The siphon tank D has inside dimensions of 3 feet by 7 feet and 4 feet deep. The sludge-removal pipes, one in each hopper, are not shown on the main sketch, but their location and connections are indicated in the small sketch below.

The sludge line from each hopper should be made of 6-inch pipe, with valves on each line located outside the tank at such an elevation that there will be at least 3 feet static head over the outlet, when the tank is full of waste, to remove the sludge. It will probably not be necessary to remove the sludge more than once a year or possibly once in two years. As a rule, the sludge will not be offensive and can be run out on a well-drained piece of ground near the plant and left to dry. It can then be removed and buried or used on land as a fertilizer. If the plant is located near dwellings it may be advisable to dig shallow trenches and cover the sludge with earth as soon as drawn. If the plant is not too near the creamery or private dwellings, a bed of cinders with a fine layer of sand on the surface makes a more satisfactory drying bed. This bed should be 12 inches deep and underdrained with tile, but without the coarse material used in the sand filters. On such a bed the sludge can be dried in about 15 days of clear weather. It is generally advisable to draw the sludge off in the fall after the flies are dead, or early spring before they appear, and it should be done when the creek that receives the wastes is in flood so that the drainage, which will be small, can go direct to the creek.

There are two ways of removing the scum. One is to churn it up and cause as much as possible to settle to the bottom and draw it off with the sludge, and the other is to draw it off with buckets. The scum removed can be hauled away in a water-tight wagon, or it can be placed in shallow piles near the plant and covered with a thin layer of earth. The latter method is preferable and is the one recommended.

The instructions given here are sufficient to enable a sanitary engineer to construct this plant properly. It is not possible to set down more detailed specifications, except with full knowledge of the exact data of the plant in question. It is essential, however, that the works be properly designed to meet the specific requirements, and the services of a competent engineer in designing and constructing this plant are distinctly desirable.

While it is probable that with careful operation the plant described will not give rise to objectionable odors, the possibility of nuisance cannot be entirely overlooked, especially during the first few months of operation. For this reason it is desirable wherever practicable to locate the plant at some distance from dwellings and from the creamery, and to cover the tank with a tight board cover. This cover will also tend to prevent serious fly nuisance.

In view of the rather common use of septic tanks in connection with the disposal of creamery wastes, it ought to be emphasized that the septic tank itself does not constitute a system of final treatment. While such a tank provides considerable removal of organic material, the comparative figures of Table 1 show that in the essential constituents, particularly the total organic nitrogen and the oxygen consumed, there has not been sufficient improvement to prevent nuisance under the usual conditions of discharge. The primary function of a septic tank is to prepare the waste for further oxidation, and the use of the sand filter for this purpose makes it possible to discharge a final waste which is practically unobjectionable.

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PROVIDE WORK FOR RETURNED SOLDIERS.

Cities are contributing thousands and hundreds of thousands of dollars for memorials to their sons who died in the world war. What are they doing for the soldiers who did not make the ultimate sacrifice? It is safe to say that as many heroes of the war are to be found among the living as among the dead. The former deserve as much recognition as the latter and are still with us to appreciate it in person, and the least recognition we can offer the returned soldier is to see to it that he shall be given immediate opportunity to earn a living.

The federal government has established agencies for this purpose, but it is reported that these are not at this time able to place more than half of the applicants for positions. As stated elsewhere in this issue, the state highway departments have been asked to provide work, and offer positions for about 92,000 unskilled laborers and 11,600 skilled. But ten to twenty times this number must find positions. A great many of them are landing in this country with not more than enough money to maintain them for perhaps a month, and must earn more at once.

Each of these is a citizen of some city or town, and the surest and most direct way to provide for them would be for each city or town to provide for its own citizens. If each would send word to the debarkation camps that it would look after the boys that it sent to the war, enable them to return to their home town and provide work for them, the problem would be solved.

In providing work, positions with private firms should be given as far as possible. If these are not sufficient in number, public work should be provided. Reports from many cities given on another page show that most of these are making such provision. It would seem to be safe to assume that there is no city or town that has not fallen so far behind in its public work program that all of its returning soldiers will be needed to enable it to catch up this year. If it be argued that such work will cost more now than next year, let us charge the additional cost to the aid given to those who risked their lives for us; rather, let us credit it to the city's record of patriotism, ranking with its contributions to the Red Cross.

Would it not be as much a disgrace to us if our boys should suffer at home as to have let them suffer in the trenches? Shall we let a single one suffer even anxiety about his future when our duty calls on us to prevent this by greeting him on debarkation with assurances that his home city will look out for him?

Memorials to the dead give honor to those who erect them and inspire patriotism in coming generations. Shall we cancel this honor with dishonor, and breed Bolshevists instead of patriots, by our neglect of the living?

WHY MUNICIPAL OWNERSHIP SOMETIMES FAILS.

On December 31st nearly 350 engineers employed on the subways of New York City were discharged with not more than forty-eight hours warning, some with no warning at all. There was no charge of inefficiency against these men, nor was there lack of work for them to do—several millions dollars worth of construction work was suddenly halted because of lack of engineers to supervise it. Some of these men had been connected with the service for more than ten years, and it will be difficult to find anywhere engineers to fill their places who have had experience in similar work. We will not attempt to fix the responsibility for this act, which was apparently due to politics or differences among public officials in charge of the work and of the appropriations for it. The significant thing is that such a thing could occur.

It is not to be wondered at that these engineers feel that an injustice has been done them and that all others in the employ of the city are impressed with the precariousness of their positions. Even thougs arrangements may be made for the re-employment of all or most of the discharged engineers, the effect producd canot be removed unless a most radical change be made in the conditions under which they are employed for public service. In spite of the feeling of resentment naturally aroused, it speaks well for the high character of the men that some of them offered to remain for a short time without salary in order to minimize the disastrous results that their immediate departure would occasion. It would be remarkable, however, if even the most public-spirited of them should not resolve that they would seek private employment and abandon public service where such unjust treatment is possible. They would appear to be justified in basing such resolve upon both the apparent failure to regard in any way the faithful and long-continued service that they have rendered, and also their discharge without any warning, an act which we cannot conceive of any private corporation even considering for a moment. Unfortunately, the former cause of complaint is more or less common in the cities of the United States—more common, probably, than anywhere else in the world.

There are two general incentives to perform work in any position, one of these the salary, the other a love of loyalty to the service itself. The former seldom secures the most efficient service, but such service must result from the latter incentive. What loyalty or interest in a service can be entertained by one who feels that his connection with it hangs by so slender a thread and that the efficiency of his work is so slightly appreciated as is the case in so many municipal positions? In view of such happenings, and of the too general tendency to change employes after each election, the wonder is, not so much that public ownership and operation of municipal utilities are sometimes a failure, but rather that they are so often a success. An explanation of the high-grade service rendered by so many engineers and other technical men

in charge of the public works of the country may probably be found in the professional pride and interest that they take in their work, which even the failure of public recognition is not sufficient to entirely suppress.

Fortunately there are a number of cities where the value of the service of the public employes is appreciated, and such employes are retained through years of changing administrations. Until this becomes the rule rather than the exception, American cities cannot expect to find in public ownership the benefit that they theoretically should enjoy. Until a city can guarantee that the technical men employed to conduct its public works will receive fair treatment and a recognition of efficient service, it had better abandon all thoughts of municipal ownership.

SEGREGATING TRAFFIC.

Comments on Regulations Adopted for New York City and Modifications Recommended.

At a recent meeting of the National Highways Traffic Association, the members considered, and referred to a committee for report at a later date, certain resolutions concerning traffic regulations that had been adopted for enforcement in New York City. These resolutions recommended radical modifications of the New York regulations, giving as the reasons the following:

I. Exclusion of a class of vehicular traffic from a thoroughfare, if for the purpose of expediting traffic and not for what might be termed "park traffic" reasons, should be on the basis of speed rather than that of the character of the load carried.

Comment—All horse-drawn vehicular traffic, both passenger and merchandise, is slow-moving traffic and tends to slow-down the traffic of any street on which it is permitted. On the other hand, a large percentage of merchandise delivery vehicles are fast-moving motor vehicles and cause no greater delay to the traffic of a street than the taxicab or private motor car.

The most practical test of differentiation between fast and slow-moving vehicles would appear to be the character of tire—solid or pneumatic—on which the vehicle operates. This is not an entirely satisfactory test, as there is an intermediate class of motor vehicles of one to three tons on solid tires that can make rapid speed without detriment to the public.

II. Fast-moving traffic, if separated from slow-moving traffic on the same street by the ordinary method of regulation, causes little or no delay to the traffic of a street of large traffic capacity and ought not therefore to be excluded from any street where the traffic of heavy, slow-moving vehicles is not so large as to tax the capacity of that street under proper regulations.

Comment—It is highly desirable that fast-moving traffic be permitted to distribute itself as widely as possible over the city, rather than to force it all into a few streets where the mere volume will produce congestion and delay.

On very few of the streets from which so-called passenger and private vehicles are excluded is there any condition that warrants the exclusion of fast-moving traffic.

III. The restriction of a series of continuous streets to one class of traffic results in wide diversions of the prohibited class of traffic to reach a thoroughfare on which it is permitted.

Comment—Reference is made to the restrictions of First, Second and Third avenues on the East side and Eighth, Ninth and Tenth avenues on the West side to so-called commercial traffic, and of Lexington, Fourth (Park), Madison and Fifth avenues to so-called passenger and private vehicles.

A fast-moving delivery wagon operating in the East side residential section would be obliged to continually run back and forth to Third avenue, resulting in an entirely unnecessary use of and interference with the legitimate traffic of that avenue as well as of the narrow cross streets.

Conversely, a taxicab or private motor car making a number of calls between First and Third avenues would be forced to continually run back and forth between Avenue A and Lexington avenue to comply with the regulations. In the case of a taxicab this is quickly translated into a swollen charge for the service that would make it prohibitive.

The existence of bad pavement conditions on certain streets adds measurably to the difficulty of observing or enforcing the ordinance. Seventh avenue may be cited as an example. Being practically impassable because of subway construction, it is practically eliminated as a possible thoroughfare for passenger vehicle traffic.

IV. The operation of any restrictive regulations should be limited to the period of the day when traffic is heavy.

Comment—This principle has been applied by the police commissioner to other regulations such as the one-way street matter, and there would appear to be even greater reason for its application to the new regulations.

SANDUSKY WATER PURIFICATION PLANT.

In his report for the year 1918 on the operation of the water purification plant of the Sandusky, Ohio, municipal water works, chief chemist O. F. Schoepfle states that 1,597.5 million gallons was filtered. Alum was used to the amount of 336,565 pounds, or 4,747 gallons per pound of alum. In 1917, one pound was used for each 4,262 gallons.

Of chlorine 12,884 pounds was used, or one-third more than in 1917. The plant efficiency (presumably in bacteria removal) was 99.36 per cent as compared with 99.22 per cent in 1917. The cost of operation was $314.99 less in 1918 than in 1917, although 66 million gallons more was purified.

LABOR FOR SOLDIERS ON STATE HIGHWAYS.

The Bureau of Public Roads of the United States Department of Agriculture has collected from the highway departments of the various states figures indicating the probable number of returned soldiers and sailors that can be used during 1919 in road construction and repair work. Of the thirty-eight states replying, only twenty-nine gave definite figures. They report they can use 11,637 soldiers and sailors as skilled laborers, and 91,904 as unskilled. Under the head of skilled labor the state highway departments were asked to report on the requirements for masons, carpenters, quarry bosses, concrete finishers, road foremen, roller men and superintendents. Unskilled laborers were not separated into classes.

The states that have thus far given definite figures, with the estimated number of men that may be used, are: Alabama, skilled, 60, unskilled, 1,000; Arizona, skilled, 48, unskilled, 100; Colorado, unskilled, 1,250; Connecticut, skilled and unskilled, 4,000; Delaware, skilled, 100, unskilled, 1,000; Florida, skilled, 685, unskilled, 4,315; Georgia, skilled and unskilled, 4,000; Idaho, unskilled, 200; Illinois, skilled, 2,500; unskilled, 15,000; Kansas, skilled, 1,000, unskilled, 4,800; Kentucky, skilled, 826, unskilled, 3,500; Louisiana, skilled, 110, unskilled 1,000; Maine, skilled, 100; unskilled, 1,000; Massachusetts, skilled, 150, unskilled, 2,000; Michigan, skilled, 200, unskilled, 2,500; Minnesota, skilled, 1,200, unskilled, 4,800; Mississippi, skilled and unskilled, 2,000; Montana, skilled, 104, unskilled, 644; Nebraska, skilled, 267, unskilled, 2,250; Nevada, skilled, 35, unskilled, 265; New Hampshire, skilled, 332, unskilled, 1,000; New York, skilled, 1,400, unskilled, 7,000; Oregon, skilled, 270, unskilled, 2,430; Rhode Island, skilled, 50, unskilled, 450; South Carolina, unskilled, 1,500; Virginia, skilled, 900, unskilled, 5,100; Washington, skilled and unskilled, 2,000; West Virginia, skilled, 700, unskilled, 9,300; Wisconsin, skilled, 600, unskilled, 7,500.

The WEEK'S NEWS

Validity of Indiana State Highway Law Upheld—United States Public Health Service Reserve Wants Men—Wisconsin's Pure Food Laws Constitutional—Molasses Tank Explosion Kills Many in Boston—Salary Increase Program of Boston—Pittsburgh Proposes Ten Million Dollars Improvements—Six-Cent Fares in Baltimore—Interstate Treaty for New York-New Jersey Port Development.

ROADS AND PAVEMENTS

Urges Use of War Material on Road Work.

Washington, D. C.—The Department of Agriculture is exerting efforts to secure from the War Department all available material not needed for war purposes and which can be used immediately in improving the nation's highways. Senator Bankhead, Chairman of the Committee on Post Offices and Post Roads, has called up in the Senate a resolution authorizing the Secretary of War to turn over to the Department of Agriculture any material he can spare. If the measure is successful in Congress hundreds of motor trucks, automobiles, mules, horses, etc., which have been purchased for war purposes will soon be used in building roads all over the country. The plan is to distribute the material throughout the various states. It is expected that thousands of discharged soldiers, especially of the engineer corps, will be employed in the road building.

Indiana Highway Law Declared Valid.

Indianapolis, Ind.—The state supreme court has handed down an opinion in which the state highway commission law is held constitutional, thereby reversing the judgment of Ernest R. Cloe, judge of the Hamilton circuit court. Good roads advocates, greatly pleased by this decision, said that in consequence of it they would abandon their plans for the passage of a new highway commission bill and would endeavor to amend the present law to make it stronger and more workable. The supreme court held unsound the arguments of the appellee "that the act in question violates the federal constitution in two particulars: (1) That in its operation it would have the effect of depriving him and others in like situation of property without due process of law in violation of the fourteenth amendment, and (2) that its operation would result in the taking of his property and the property of others in like situation for a public use without just compensation in violation of the fifth amendment."

This court has recently held that where a local improvement of a public nature is construed under a law providing that the costs shall be paid in whole or in part from the proceeds of special assessments to be levied on the property beneficially affected thereby the property owners have a right to notice and an opportunity to be heard before a special assessment of this kind can be legally imposed. The reason for the rule there announced is that such assessments are made on the theory that each particular piece of property assessed is especially affected and benefited to the extent at least equal to the amount of the assessment imposed. Such assessments are imposed on the theory that the property affected is enhanced in value or otherwise especially benefited to the full amount of the assessments imposed, and that nothing is exacted by the assesment which is not fully compensated by benefits actually accruing to the land affected.

The rule thus announced applies only to special assessments made against specific property based on actual benefits resulting thereto on account of a local improvement. The rule has no application to the exercise of the general taxing power of a state or any of its municipal subdivisions. Taxes levied for governmental purposes are not imposed on the basis of a special and particular benefit accruing to each citizen in proportion to the taxes paid. The protection of life, liberty and property, and the other rights, privileges, immunities and benefits which a citizen enjoys as a result of living under the protection of an organized government are of such a nature that their value cannot be measured by dollars and cents. The power to tax for such purpose is not limited to actual benefits resulting to the citizen by reason of the maintenance of government, but such power is limited only by government needs.

There can be no doubt that improvements of a public nature, such as the construction and improvement of highways, waterways, bridges and other works of a like nature, may be of such general benefit as to warrant their construction at government expense in the exercise of governmental power. Where the legislature authorizes an improvement of the character mentioned to be made by the state or by any of its governmental subdivisions it has power to determine the manner in which the fund shall be raised for the payment of the costs and expenses.

If it decides that the improvement is of such general benefit and public importance as to justify such a course it may provide that the entire fund shall be raised by a general tax. In case the work contemplated is not regarded by the law-making power as of sufficient public importance to justify the payment of the entire cost by general taxation it may provide that property beneficially affected by the improvement shall bear a portion of the cost to be especially assessed against it in proportion to the accruing benefits, and the remainder of the cost shall be paid by the municipality within which the improvement is located from funds raised by general taxation, or the legislature may provide that the entire cost and expense of the improvement shall be especially assessed against the property beneficially affected in case the total costs and expenses do not exceed the aggregate special benefits accruing to the property so affected.

The power to determine in which of these ways such a fund shall be raised is legislative in character, and the action of the legislature in that regard is binding on the other departments of government.

The power to construct and maintain public highways is a governmental function, the same as the power to build schoolhouses and support schools or to build courthouses and jails, or to construct and maintain asylums for the insane or for the dependent poor. . . . If the exercise of the taxing power in any instance is regarded by the people as unwise, unjust or oppressive the remedy must be sought through the action of the legislature. The judicial department of the state is powerless to grant relief on those grounds.

As to the contention of the appellee that the title of the law did not conform to the constitution, the court held that also invalid. The court further decided that the law was in no way local or special as had been charged. The court, near the conclusion of the opinion, replied to the averment that the law established a new department of government by saying that the highway commission is an administrative body intrusted with the application and administration of the statute under which it is appointed. In this respect it is similar to the state board of tax commissioners, the public service commission and other boards and commissions created under the laws of this state. The law is not open to the objection that it confers powers of a judicial nature on a body that is administrative in its character.

Paving Contractors Lose Fight for Payments.

Porterville, Cal.—The Federal Construction Company of San Francisco has lost its petition for a writ of mandate, brought in the Supreme Court, for an order to compel the city council to validate bonds for payment of paving contracts completed by the plaintiff corporation and of a nominal face value of $110,000. When the contracts for street work here were completed, nearly four years ago, the city refused payment on the ground the work was not done in accordance with the plans and specifications. The decision of the council was appealed to the Supreme Court of Tulare county, where the corporation lost on a writ of review and the appeal to the state Supreme Court followed. The concern based its petition for the writ of mandate on the declaration that members of the council, who passed on the work, had property covered by the securities and were therefore biased and prejudiced. This decision of the Supreme Court not only upholds the recently amended street improvement act, under which the work was done, but means in effect the construction company has no legal means of collecting a cent for all the work done here and which the city officials find was not completed in accordance with contract. What further steps will be taken by

the company is not indicated, although there are some means which may be used to again get the case into the courts. Some time ago the city offered the contractors a compromise, which was not accepted. It is possible the eventual outcome will be the acceptance on the part of the Federal Construction Company of part payment for the work.

SEWERAGE AND SANITATION

U. S. Public Health Service Reserve.

Washington, D. C.—According to a bulletin by Surgeon-General Blue the reserve of the Public Health Service is organized for the purpose of making available a corps of physicians, sanitarians and scientists, who may in time of national emergency be called to active duty in the Public Health Service. The reserve officers will ordinarily remain on inactive duty, but subject to call at any time. When an emergency arises they may be called to active service, and while so serving they will receive the compensation of their grade. The duties which reserve officers will be expected to perform are similar to those of regular officers of the Public Health Service. Those who wish to be considered for membership in the reserve are requested to comply with paragraph four of the rules and regulations for the government of the reserve of the United States Public Health Service, which provides as follows: "Citizens of the United States desirous of undergoing examination for appointment and commission in the reserve of the Public Health Service must make an application in their own handwriting requesting permission to appear before a board of examiners. An applicant for examination shall state his age, date and place of birth; present legal residence; whether he is a citizen of the United States; give the names of the schools or colleges of which he is a graduate; furnish testimonials from at least two persons as to his professional and moral character, and submit a recent photograph of himself. An applicant of foreign birth must furnish proof of American citizenship."

Supreme Court Upholds Food Laws.

Madison, Wis.—News has been received that the Wisconsin pure-food enactments of 1909, 1913 and 1915, prohibiting the sale of food products preserved with benzoate of soda, benzoic acid and derivatives, have been declared constitutional by the United States Supreme Court at Washington.

State Board Asks Enlargement of Sewerage Works.

Brockton, Mass.—In its annual report to the legislature on condition of the various rivers of the commonwealth the state department of health recommends that the sewerage works of the city of Brockton be enlarged as soon as practicable, in order to improve the condition of Salisbury Plain and Taunton rivers. Of these streams the department says: "The Salisbury Plain river below Brockton has been more seriously polluted than at any previous time. There has also been an increase in the pollution of Town river below Bridgewater, of the Nemasket river below Middleboro and of the main stream below Taunton. Improvements are under way at Brockton which when completed will no doubt relieve the Salisbury Plain river of much of the pollution which it now receives, and the proposed increase in the capacity of the disposal works will improve the character of the effluent discharged into the river. The town of Bridgewater is temporarily discharging its sewerage into Town river and has prepared plans of works for the treatment of the sewage, the construction of which was postponed on account of the war. The town of Middleboro prepared plans for the purification of the sewage of that town many years ago, but has taken no further action in the matter. The city of Taunton, acting through its sewer commissioners, began early in 1917 the preparation of plans for works for the treatment of its sewage, but owing to the lack of engineers on account of the war, the work was discontinued. The cause of this delay being now removed, it is expected that the work will be taken up again and carried to completion. It is important for the prevention of further objectionable pollution of the Taunton river and its tributaries that the sewerage works of the city of Brockton be enlarged as soon as practicable and that suitable works for the treatment of the sewage be provided in the other places herein mentioned."

WATER SUPPLY

Electrification of Water Supply Pumping.

Pueblo, Colo.—Last year, at the South Side water works an electrically driven, direct-connected pump, with a capacity of 3,000,000 gallons daily was installed. The city is now preparing to install a second unit with 6,000,000 gallons daily capacity. It is the intention of the trustees to electrify the entire pumping system during 1919. All of the energy is supplied by the Arkansas Valley Railway, Light & Power Co. The trustees have estimated an annual saving of $10,000 when the plant is completely equipped for electrical operation.

To Resume Construction of Water Works.

Altoona, Wis.—Preparations for the early resumption of work on the municipal water works plant here, as soon as weather conditions permit, are being made by A. Larson & Company, general contractors, of Eau Claire. Forms are being made there for the 60,000 gallon concrete reservoir which the company will erect in the spring, and will be taken to the scene of operations within a short time. The reservoir will be sixty feet high and fourteen feet in diameter. The reservoir will be located on top of the hill near the Altoona school house, this being 165 feet above the general area of the city, where the water will be distributed by gravity. The well from which the water will be pumped by an electrically operated pump has already been sunk. Water mains will be laid throughout the city during the spring and summer. When this project is completed Altoona will have an adequate supply of water for all purposes, including fire protection. The entire project will cost in the neighborhood of $40,000 to $50,000.

California State Water Commission.

San Francisco, Cal.—The state water commission has recommended that the salaries of two of its three $5,000 a year commissioners be abolished. The commission is composed of A. E. Chandler of Berkeley, president; W. A. Johnstone of San Dimas and Irving Martin of Stockton, who were appointed by Governor Johnson in 1914. The new formation of the commission as recommended in its report will be one executive member on a stated salary and two associate members on a per diem basis. The executive member is to have exclusive power to act on all applications to appropriate, subject to appeal to the full commission. The associate members are to perform all the duties now imposed on members of the commission except unappealed application to appropriate water. The total number of applications to appropriate water since 1914 is 1,059, according to the report. During the ten months of last year covered by the report the commission has received 528 applications, of which 202 for agricultural purposes, 34 for mining, 12 for power and 8 for domestic uses were granted. Any person obtaining a water right must apply it to beneficial uses only or forfeit his right, according to the commission. For the last two years the commission has been carrying on an investigation of the effect that the proposed storing of the waters of Alameda creek tributaries near Niles would have. Another year is allowed in which the commission expects to obtain the relation between the flow of Alameda creek and the replenishment of the underground waters of what is known as the Niles cone. The investigation is the result of the controversy of two years' standing between the Spring Valley Water Company and the Alameda County Water District. Both parties to the litigation have agreed to abide by the decision of the commission.

FIRE AND POLICE

Fatal Explosion of Molasses Tank.

Boston, Mass.—At least eleven persons were killed and many more injured by the explosion of a storage tank of molasses in the yard of the Purity Distilling Company, a subsidiary of the U. S. Industrial Alcohol Co., near Copps Wharf. The explosion blew away two of the supporting pillars of the Atlantic Avenue elevated railway structure, demolished several buildings, blew an electric freight car off the track, overturned a number of heavily loaded trucks and killed about a dozen horses. Most of the killed were teamsters and employees of the city who were at work in the city street department yard adjoining the electric freight yard where the explosion occurred. The molasses spread over the street to a depth of two or three inches. Many of those killed or injured were covered with molasses and could not be readily identified. Sailors from the United States ship Rockport at a wharf nearby were the first to assist after the explosion. They were quickly followed by surgeons of the navy stationed in the vicinity and members of the Red Cross. The tank contained 2,000,000 gallons of molasses. The most generally accepted theory of the cause of the explosion was that of fermentation of the molasses, with no point of outlet for the gases. It is understood that a slight fire is maintained to keep the molasses in a state where it will run most freely. It might be either that the fire was hotter than normal or that the molasses had some ingredient differing from ordinary molasses kept therein. The tank was seventy feet in height and seventy-five feet in diameter. The explosion came with a dull roar, but its force was terrific. As the tank—a huge iron structure containing more than two million gallons of molasses—went into the air there was no hope, naturally, for the employees in close proximity to it. Men were either killed outright by being struck by pieces of metal or engulfed in the running molasses. Fragments of the tank were thrown into the air, buildings in the neighborhood crumpled up as though the underpinnings had been pulled away from them, and scores of people in the various buildings were buried in the ruins, some dead and others badly injured. The top of the tank first shot into the air and then the walls collapsed. The force of the explosion knocked over the fire boat house of Engine 31. One of the firemen was blown into the harbor. Two others were pinned in the ruins and a fourth was not accounted for. A nearby tenement house fell in. Two women and a man were taken from the ruins, all injured.

Three Killed in Fire Truck Collisions.

Indianapolis, Ind.—The equipping of all motor apparatus in the Indianapolis fire department with high-powered motor sirens, the sound of which may be heard for blocks in every direction, has been ordered by A. L. Taggart, president of the board of safety, following a preliminary investigation by members of the board as to the cause of an accident which resulted in the death of three men —the captain of the Indianapolis salvage corps, a captain in the fire department and a member of the salvage corps —and injury to seven others. It occurred when the salvage corps truck was in collision with motor hose wagon No. 7 from fire headquarters. The investigation showed, according to the members of the board, that the salvage corps truck ran into the motor hose wagon of the fire department. Dr. Paul Robinson, coroner, said his investigation proved clearly that the accident was unavoidable. When the collision occurred the impact was so great that the hose wagon jumped the curb and crashed into the front of the Merz Motor Company building. Both trucks were responding to an alarm of fire and the accident occurred as the drivers of the machines attempted to avoid striking each other. Both pieces of apparatus arrived at the street intersection at the same time and Ankenbauer, in trying to avoid a direct collision with the fire truck, attempted to make a quick turn. The driver of the hose wagon, also trying to avoid a collision, swerved. However, the turn of the salvage corps truck was not short enough and the two trucks met at the northwest curb. Ankenbauer, Shipp, Earle and Trobaugh, of the salvage corps, and Lowes and Wiley, of the first wagon, were catapulted from their seats. Captain Lowes was thrown on the mail box at the corner and was crushed between the box and the front end of the salvage corps truck. Ankenbauer was thrown head foremost to the sidewalk. Both were killed almost instantly. One contributing cause of the accident probably was the fact that the hose wagon was delayed in leaving fire headquarters, which are only one block from where the collision occurred. The headquarters of the salvage corps are in Pearl street, between Alabama and Delaware street, about four and one-half blocks from the point of the collision. Ordinarily the hose wagon would have passed before the salvage corps wagon arrived. The delay was occasioned, it was said at fire headquarters, because the alarm was first recorded incorrectly on the tape, and members of the squad waited to hear the alarm sounded from the manual. The alarm on the manual is not received at the engine houses until after the box has been recorded twice on the tape.

Urges Complete Motorization.

Auburn, N. Y.—Charles P. McCarty in submitting his own report as fire commissioner and the reports of chief Edward J. Jewhurst and fire marshal George S. Coneybear, recommends the replacement of all horse drawn apparatus with motor driven trucks at the earliest possible time. He says: "The apparatus as a whole is in good condition. I cannot say this as far as the horses are concerned. We have arrived at a point where we will have to replace several of the horses owing to old age and inactivity. I wish to make the following recommendation. The horse is sure to disappear from the fire service. The expense of his keep is increasing every year, while his efficiency is not increasing in the same proportion. If it is increasing at all, the horse is very slow in comparision to the gasoline motor for fire service. In view of the fact that the value of the motor apparatus has been so firmly established, and of the excellent service we have received from it in this city, there is not, in my opinion, a single reason in favor of the horse. While I do not feel that it would be advisable at this time to go to the expense of motorizing the entire department, it seems to me, however, that it would be a wise and economical move for the city to purchase at least one piece of motor apparatus each year until the department is motorized."

GOVERNMENT AND FINANCE

Boston's Program for Salary Increases.

Boston, Mass.—Mayor Andrew J. Peters has outlined the financial causes of the necessity of appealing to the legislature again; the need of the strictest economy in the various estimates for the coming year, and the extent to which he would go in increasing salaries. The mayor has estimated that his salary program will add $750,000 a year to the payroll, and told the department heads: "It will be a strain upon the city's resources, but if it guarantees, as it should, contented minds and loyal service, I shall consider the advance a profitable investment, as well as an act of justice." The mayor, however, has neither accepted the demands of labor organizations on the one hand nor of the finance commission on the other hand. He has striven to strike a happy medium, keeping in mind the loss of $1,000,000 in license revenue for next year, the increased demands of charitable institutions, dormant conditions which will mean but little increase in valuation and the expeited continuance of high prices for ordinary city supplies. The finance commission asked him to increase wages moderately as a war measure, but the mayor does not subscribe to that plan, the war being over. The mayor, instead of granting the appeal of the firemen for salary increases totaling $326,000 a year, is willing to create a new maximum of $1,500 to begin after a service of one year at the present maximum

of $1,400. For the policemen he will grant a new maximum of $1,500 to begin after one year. For employes on a sliding scale, the mayor will continue the increases decided upon long ago, step by step, and in increasing other employes $100 a year where the salary is below $1,800 he is following the course adopted last year. The mayor said in part: "Requests for increase of pay have recently been presented by various classes of city employes. Taken in the mass, these requests constitute a joint appeal for relief from the burden of high prices. In providing such relief as seems to be practicable, I feel that all the interested parties—and these include the taxpayers and the citizens in general, as well as the employes—should be willing to agree upon certain very simple principles.

"1. The increased cost of living must in all fairness be considered in regulating the wages of city employes.

"2. The lowest paid employes, often men with large families, should receive consideration in preference to those on liberal salaries, who would naturally have greater resources.

"3. The city, offering as it does permanency of employment, reasonable hours and other well-known advantages, should not be asked to compete with what may be called abnormal or emergency wages paid elsewhere.

"4. Increases, however desirable in themselves, cannot be granted to an extent which might involve the possibility of a reduction of the working force, with consequent unemployment for many workers and curtailment of necessary services. Discharges or even suspensions on any considerable scale would certainly produce more hardships than the continuance of employment under present conditions, which are, in most cases, tolerable, if not altogether satisfactory. I am confident that the spirit of cooperation among the employes will prevent them from pressing their demands to a point at which it might become financially and legally imperative to consider such a step.

"The possibility may not be imminent, but neither is it remote. We have, for example, a fixed limit of appropriations, which only the legislature can raise. That body in 1917, without intending to do so, actually reduced by a substantial sum the total that can be appropriated for the regular departments and the schools. To offset this reduction and to meet such calls as this from the employes and other demands not less legitimate we have no recourse at present but annual petitions to the Legislature, the success of which is contingent upon the will and disposition of that body. With reduced appropriating power the city has to face in the coming year unusual expenses, attended by a loss of customary revenue. The liquor licenses alone have brought in about $1,000,000 annually to the city treasury, and this revenue will soon be cut off. The war has immensely expanded the work of the Soldiers' Relief Department and of the Overseers of the Poor. The increased cost of supplies and material will be felt by the city institutions and by all departments doing construction work. As a result of the slackening of building operations the valuation of the city is not increasing at a normal rate. Keeping in mind the present limit of the appropriating power and looking at the whole subject with as clear and equitable a judgment as I can command, I favor the following schedule of wage increases in the budget of 1919:

"For laborers, janitors, and others in this class, a per diem increase of fifty cents.

"For firemen, a new maximum of $1,500, to begin after a service of one year at the present maximum of $1,400.

"For policemen, a new maximum of $1,500, to begin after a service of one year at the present maximum—subject, of course, to concurrent action by the Police Commissioner.

"For employes on a fixed salary, such increases as the department heads may recommend, with the understanding that no increase shall exceed one hundred dollars a year and no salary shall be raised to a figure beyond $1,800.

"For employes on a sliding scale, advance by steps at the appointed periods, according to the present system.

"For resident employes in hospitals and other institutions, who receive board in part payment and are less affected by fluctuations in prices, moderate increases to the lower grades.

"The aggregate of these increases may amount to $750,000 a year. It will be a strain upon the city's resources to provide this sum; but if it guarantees, as it should, contented minds and loyal service, I shall consider the advance a profitable investment, as well as an act of justice."

Planning $10,000,000 Improvements.

Pittsburgh, Pa.—The city planning commission, after conference with mayor E. V. Babcock, has adopted the plan of the city engineers for the Mount Washington Boulevard. It was decided this improvement should be included in the coming bond issue. This fixes the plan for city improvements so far contemplated as the widening of Diamond street, widening and paving of East Ohio street, improving Mount Oliver street, widening, grading and paving East Carson street, widening and improving East street, acquiring property and extending Butler street to connect with Highland Park and Washington Boulevard, widening and improving Second avenue, Monongahela Boulevard, widening and improving Brownsville avenue, abolishing grade crossings at Hazelwood and improving Second avenue, widening and improving William street, constructing Mount Washington Boulevard from Brownsville avenue to Merrimac street. These and provisions for repaving streets, building bridges, swimming pools, sewers, shelter houses and playgrounds, etc., will require from $10,000,000 to $12,000,000.

Western City Bothered by "Soviet."

Portland, Ore.—Mayor George Baker, with city, county and state officials, is ready with measures to be taken against members of the newly organized Local Council of Workmen, Soldiers and Sailors, should they attempt any concerted action without official sanction. The mayor declared that rumors of threatened action by members of the Workers' Council had come to him from such sources that he could not ignore them. The Council of Workmen, Soldiers and Sailors, according to information given to mayor Baker, is made up of I. W. W. and disorderly elements with some discharged soldiers and sailors, who are said to be without funds and are being sheltered and fed by the organization. Reports that members of the council at a mass meeting had threatened to seize the armory, arm themselves, and seize the heads of the local government, led to the assembling of the Multnomah County Guard at the armory, where they were held by Colonel Lewis Campbell, head of the organization, ready to respond if called upon to quell any disturbance. No outbreak occurred.

TRAFFIC AND TRANSPORATION

Commission Approves 6-Cent Fare.

Baltimore, Md.—The state public service commission has ratified the six-cent fare of the United Railways & Electric Company, Baltimore, put into effect by the company on Oct. 1. The commission has also ratified the increase to six cents in the fare charged on the buses of the Baltimore Transit Company, a subsidiary of the United Railways & Electric Company. In confirming the increase in car fare the commission stipulated that this action permitted the larger fare until Dec. 31, 1919, and that the continuance of a six-cent fare after that date depended upon circumstances. In its opinion the commission said: "The company will be required by the commission's order to make regular monthly reports of its operating results under the new rates, and if it appears at any time that a reduction of less than the full 1-cent increase can be properly required, such reduction will be made in the sale of tickets in small quantities at such prices as may be deemed expedient from time to time. This commission has decided from the facts before it in this case that the fair worth of reasonably adequate street railway service to the community served by the respondent company and under existing conditions is 6 cents as the basic rate for adults, and 4 cents as the basic rate for children between four and twelve years of age."

City Denied Co-Receiver for Transit Lines.

New York, N. Y.—Judge J. M. Mayer of the United States District Court has denied the applications of the Board of Estimate and Apportionment of New York City and of the Public Service Commission for the First District of New York for additional receivers to administer the affairs of the Brooklyn Rapid Transit Company. He made permanent, however, the appointment of Lindley M. Garrison as sole receiver. Mr. Garrison's temporary appointment was made on the last day of 1918 when the Brooklyn Company was declared bankrupt. Counsel for the city and the commission urged that the city's investment in the rapid transit system warranted the appointment of a co-receiver, but there were evidences of dissension between

them as to which body should be allowed to represent the public and who should be appointed as receiver. Judge Mayer stated that a time might come in working out the financial future of the company when the aid of a receiver representing at that time the "united view of the public authorities" might be of great service, but he thought that any co-receivers at present would destroy the efficiency of the receivership. In this connection Judge Mayer indicated pointedly that a receiver is simply a representative of the court; that private owners in the case of a receivership cannot settle affairs outside without submitting their settlement to the judgment of the court, and that the duty of the court is to conserve and operate the property under existing contracts without favoring any faction or interest. He added that the court is entitled to a singularity of purpose in a receivership, and that a co-receivership now in the B. R. T. case "might transfer from a forum outside the receivership and the court the controversies which might properly be settled at some place and time other than by court."

CITY PLAN NING AND HOUSING

Proposes Interstate Treaty for Port Development.

New York, N. Y.—The New York-New Jersey Port and Harbor Development Commission has made public a "Tentative Draft of Supplementary and Amendatory Treaty Between New York and New Jersey," which it has prepared to create a legal plan for the further comprehensive development of the port of New York. This purpose, it says, can best be accomplished through the co-operation of the two states by amendment to the treaty of 1834, by which New York and New Jersey determined their respective rights and duties in and about the water surrounding this port.

Article I of the tentative treaty is a pledge from each state to the other that it will faithfully co-operate "in the future planning and development of the port of New York, holding in high trust for the benefit of the nation the special blessings and natural advantages thereof."

Article II provides for a "Port of New York District," the boundary lines of which are to be determined after public discussion, and which may, from time to time, be changed by the concurrent action of the legislatures of both states.

Article III creates "the Port of New York Authority."

This authority, as provided in Article IV, is to consist of six commissioners, three from each state. It is to be a body corporate and politic (Art. VI), "with full power and authority to purchase, acquire, construct, leave and (or) operate any terminal or transportation facility within said district; and to make charges and establish rates or tolls for the use thereof; and for any of such purposes to take, own, hold, lease, and (or) operate real or personal property, to borrow money, and secure the same by bonds or by mortgages upon any property held or to be held by it; but nothing herein contained shall affect the present legal title to any property now vested in or held by either state or by any municipality, city, county, village, township, or private individual or corporation, nor affect any bonded indebtedness of such state, municipality, or other body, individual or corporate."

By Article VII the Port Authority may receive such additional authority as may from time to time be delegated to it by the two states or by the Federal Government.

Under Article VIII no grant of land within the Port of New York now owned by either state is to be made hereafter without the approval of the Port Authority.

By Article IX, if the legislatures of the two states adopt a plan for the comprehensive development of the Port of New York, no changes are thereafter to be made in the plan except by and with the approval of the Port Authority.

By Article XII the Port Authority is given power to appear on behalf of the two states before the Interstate Commerce Commission, the Public Service Commission, the Public Utilities Commission, or any other administrative, judicial, or legislative body, for the purpose of securing the adoption and execution of any measures designed to improve the handling of commerce or the terminal and transportation facilities.

By Article XIV it is provided that the two states are to meet in equal shares the expenses of the Port Authority. By Article XVII provision is made for the Port Authority to make suitable orders, rules, and regulations within the district for the improvement of navigation and commerce of the district. Detailed machinery is provided for securing action by the municipalities, or, in the absence of such action, a determination by the Appellate Division of the Supreme Court for the First and Second Departments of New York State or by the Supreme Court of New Jersey. The commission offers the draft as a tentative plan upon which it invites public discussion. After discussion and further consideration, it will report to the legislatures of both states a form of treaty which it will recommend. With the treaty was also issued a report by Julius Henry Cohen, the commission's counsel, giving the legal considerations underlying the plan. In his report, Mr. Cohen says: "At the threshold we face the fact of dual political sovereignty. The port lies in two states, each an independent sovereignty in its own land. The legal problem, therefore, cannot so easily be stated or solved as it might before New Orleans, Philadelphia, Boston, or Baltimore." Mr. Cohen points out that "traffic between two states across boundary waters is interstate commerce," and that neither one state nor the other can wholly regulate the port. In the decision by the Interstate Commerce Commission in the New York Harbor case, it was held that "Historically, commercially, and industrially the cities of northern New Jersey within the metropolitan district constitute a part of New York." "The problem presented to the Port Commission," says Mr. Cohen, is "how shall this interstate relationship—now politically divided—be effectively united to promote the welfare of the two states and the nation?"

Proposed Village Suburbs for English City.

Bristol, England.—For several years before the war building operations in Bristol were inadequate to the city's needs, and since the war they have ceased altogether on account of the lack of labor and materials. The medical officer of health of this city estimated recently that there are 586 condemned houses in Bristol in occupation, 2,000 houses in occupation which should be condemned, and over 5,000 in occupation which are unfit for habitation. It is thought that there will be at least 3,000 houses required by returning soldiers as represented by military marriages up to 1917, and that the minimum number of houses required for the actual needs of the present population is 2,000. The health officer believes that a total of 7,250 houses will be required within the next 5 years. The section of the city inhabited by working people is made up principally of small residences of six rooms—three bedrooms, a parlor, a kitchen, and a scullery—and the rents vary from $1.35 to $1.85 a week. Few of the houses in these districts are owned by the occupants. So great is the congestion that none are ever empty. When a dwelling becomes vacant there are usually as many as 20 people on the waiting list of the landlord anxious to take the house. Those houses nearest large factories are most in demand. Few have gardens, but most of the tenants have allotments for gardening within fairly convenient reach. There is now a tendency on the part of the Government to favor the provision of houses for working people by the local authorities or by public utility companies instead of by private enterprise as heretofore. The city of Bristol is carrying out this policy by arranging to purchase 700 acres of land at a cost of about $725,000, which is to be laid out as village suburbs. Further important purchases will probably be made for this purpose at a later date. In this connection the city council has approved a recommendation that application be made to the British Local Government Board for sanction to erect 5,000 houses at the end of the war. It is proposed to develop five village suburbs at suitable points on the outskirts of the city. Each house is to have adjoining sufficient land for a garden, and the houses are to be erected not more than twelve to the acre. For every nine acres devoted to building it is proposed to devote one acre to open spaces, which are to contain tennis courts, bowling greens, and provision for other outdoor pastimes. The houses are to be semidetached or built in small blocks and set back from the street. In many cases the houses are to be planned in quadrangles, with a view to avoiding monotony of appearance. The smallest dwelling is to contain a fairly good-sized living room, a scullery, and two bedrooms, but the larger ones will have three or more bedrooms and many of them a parlor.

NEWS OF THE SOCIETIES

Feb. 25-28, 1919.—AMERICAN ROAD BUILDERS' ASSOCIATION. Sixteenth annual convention and Ninth American Good Roads Congress under the auspices of the A. R. B. A., Hotel McAlpin, New York, N. Y. Secretary, E. L. Powers, 150 Nassau street, New York, N. Y.

Nov. 12-14, 1919.—AMERICAN SOCIETY FOR MUNICIPAL IMPROVEMENTS. Annual convention, New Orleans, La. Secretary, Charles C. Brown, Bloomington, Ill.

Fire Marshals' Association of North America and National Board of Fire Underwriters.

A two-day conference was held in New York City on Jan. 9 and 10 by a special committee of the Fire Marshals' Association of America and the National Board of Fire Underwriters.

The first session was opened by L. T. Hussey, state fire marshal of Kansas, as chairman, and he was followed by W. E. Mallalieu, general manager of the National Board of Fire Underwriters who spoke in the absence of the president, Frederick C. Buswell.

Figures showing that the United States leads the world in property destruction by fire were given, the damage per capita being stated as $2.10 annually in this country, as compared with 49 cents in France, 33 cents in England, 28 cents in Germany, 25 cents in Italy and Austria, 15 cents in Switzerland, and 11 cents in Holland. Sixteen thousand lives and $250,000,000 in property are lost every year in this country's fires, according to statistics. Careless smokers and users of matches were responsible for $15,724,556 of the total loss of $60,466,054 worth of property by "preventable fires" in the United States during 1918.

Alfred Fleming, of Columbus, Ohio, president of the Fire Marshals' Association, reported that more than 93 per cent of the fire prevention orders issued by states had been obeyed. He asserted that more had been accomplished in the last two years toward reducing fire waste than in the ten preceding years. He termed newspaper reporters "machine guns" and editors "heavy artillery" in the fight against fire. Mr. Fleming urged the appointment of a director of publicity and education by the underwriters. Such a man he said should be an earnest student of fire prevention and possessed of "a proper sense of news values."

Homer Rutledge, of Lansing, Mich., fire marshal of that state, discussed "The Arson Trust," and showed how incendiaries had burned $8,121,816 worth of property in one year during the war, exclusive of the many other millions destroyed indirectly by explosions. Ole O. Roe, of Des Moines, fire marshal of Iowa, in an address on "Pyromania," said education was one of the most efficient means of combating this evil. F. R. Morgaridge of New York, formerly assistant fire marshal of Indiana, said most firebugs were adolescent boys and girls. He advocated proper home and school training.

Despite the fact that the United States was at war and that enemy agents were active, twenty states reported a slight decrease in the number of cases of arson. While it was announced as a fact that in the first nine months after the country declared war, $43,000,000 worth of war industries went up in smoke, in only 10 per cent. of these cases was there even suspicion of spy-work. "Carelessness" was designated as the biggest firebug of all. One grain elevator fire alone destroyed enough wheat to make a year's supply of bread for 200,000 soldiers.

Many fires at first attributed to German spies and pyromaniacs were found, upon investigation, to be due to other causes. One notable instance was a spectacular and costly waterfront fire in Brooklyn, the Dow's Stores, in which a vast quantity of grain intended for shipment to the Allies was destroyed. It was discovered that the blaze was the result of a dust explosion caused by a spark either from friction or static electricity. Another conspicuous instance was the Baltimore pier fire, which at first was positively ascribed to pro-German plotters. Rigid investigation by Federal agents, according to fire marshals, definitely determined its non-incendiary origin.

Following a reference to the Morgan, N. J., disaster, in which nearly one hundred lives were lost and $20,000,000 damage done, delegates spoke of the work accomplished the past year by the fire prevention section of the War Industries Board. This bureau, it was stated, had inspected more than 2,000 large plants, valued at over $10,000,000,000, and in a large percentage of cases the "safety" recommendations of its volunteer dollar-a-year engineers were carried out.

It was stated that fire prevention methods adopted for the sixteen large army cantonments throughout the United States had proved most effective, although these camps consisted of wooden buildings. Hazards were reduced to the minimum by proper watchfulness, water protection, isolation, conducting, and enforcement of regulations in regard to smoking and the use of matches and lights.

Fire Chief Kenlon, of New York City said that if a serious blaze had started during the armistice celebrations all New York might have been laid in ashes. The fire department would have been crippled also, he said, by the crowds and traffic congestion in the streets. As one of the delegates expressed it, "Thus was invited the greatest loss of life and property, perhaps, in American history."

For every man enrolled in cantonments and camps in the United States, the Government suffered a fire loss of forty-six cents last year, while for

(*Continued on page 79*)

PROBLEMS CITIES ARE STUDYING WITH EXPERTS

A STORM DRAIN SYSTEM is to built by the city of Douglas, Ariz., for which $100,000 in bonds is to be voted. The consulting engineers are Olmsted & Gillelen.

Vermillion, O., is to make extensive PAVING and SEWER IMPROVEMENTS, according to plans being prepared by the consulting engineer, Mr. Gascoign. The plans include brick paving to cost $40,000.

DRAINAGE SYSTEM is to be built by the city of Phoenix, Ariz., involving ten miles of tile pipe, to cost about $150,000. The consulting engineer is H. Phillips.

Mitchell, S. D., is soon to receive bids for WATERWORKS IMPROVEMENTS to cost about $100,000. The plans were prepared by the consulting engineers, Burns & McDonnell.

The Keeney Creek and Ray Drainage Districts, Richmond, Mo., plan to build DRAINAGE SYSTEMS, including drainage ditch, levees and flood ways, to cost $150,000 and $225,000 respectively. Plans are being prepared by the consulting engineering firm of C. E. Jacoby Engineering Company.

A CONCRETE BRIDGE is to be built by the city of Glenwood, Ark., according to plans being prepared by the Burnham Engineering Company, consulting engineers.

Trenton, N. J., plans to build a three-pier, reinforced concrete BRIDGE over Sanhican Creek. The plans have been prepared by the consulting engineer, H. Harris.

Laredo, Texas, is to build a sanitary SEWERAGE SYSTEM, to cost about $200,000, according to plans being prepared by the F. A. Jones Engineering and Construction Company, consulting engineers.

Webster City, Ia., is to receive bids for the construction of a 1,000,000-gallon WATER PURIFICATION PLANT according to plans prepared by the consulting engineer, C. H. Currie.

The Courtney Drainage District, Courtney, Mo., is having plans prepared for a FLOOD PROTECTION SYSTEM along the Missouri River and Mill Creek, comprising 1,000 acres. The plans are being prepared by the consulting engineers, the C. E. Jacoby Engineering Company.

INDUSTRIAL NEWS

The Warren Foundry and Machine Company, New York City, which manufactures cast-iron pipe, announces the appointment of H. H. Kinsey as New England representative, with offices at 201 Devonshire street, Boston, Mass. Mr. Kinsey has been engaged in selling water-works supplies for the past twenty years.

The National Slag Association, at a recent meeting in Cleveland, elected officers for the year 1919 and appointed an executive committee. The three officers elected are F. A. Sarstedt, C. E. Ireland and H. J. Love, elected respectively president, vice-president and secretary-treasurer, and the executive committee consists of F. A. Sarstedt, L. A. Beeghley, L. H. Hawblitz, E. H. Kuttner and C. L. McKenzie. The executive committee was authorized to act as a contact or co-operation committee, with similar committees appointed by the national organizations which are supported by the sand, gravel and stone interests in the United States.

The association announces that in all about 80 per cent. of the commercialized blast furnace slag tonnage of the country is represented by this association, whose aim is the ultimate standardization of this product when used as railroad ballast, concrete aggregate, or in macadam highway construction.

The American-La France Fire Engine Company, Inc., Elmira, N. Y., announces that it has shipped the following orders:

Windber, Pa., type 12, comb. chem. eng. and hose car; Hudson Falls, N. Y., Union Paper Bag & Paper Co., type 12, triple; Washington, D. C., type 20, booster pump; Watervliet, N. Y., type 33, hook and ladder truck; New Kensington, Pa., type 12, triple comb. chem. eng. and hose car; Blackwell, Okla., Brockway comb. chem. eng. and hose car; Providence, R. I., type 17, tractor; Windber, Pa., type 12, triple comb. chem. eng. and hose car; Puget Sound, Wash., type 12, triple comb. chem. eng. and hose car; Okura & Co., Yokohama, Japan, 2 type, 31 tractors; Carrick, Pa., type 12, chem. eng. and hose car with junior pump; Omaha, Neb., triple comb. chem. eng. and hose car; St. Louis, Mo., type 14, com. chem. eng. and hose car; Westbury, N. Y., type 12, triple comb. chem. eng. and hose car; New Holland, Pa., type 40, comb., with junior pump; Ithaca, N. Y., type 12, triple comb. chem. eng. and hose car; Aurora, Ill., type 12, triple comb. chem. eng. and hose car; Baltimore, Md., comb. piston pumping eng. and hose car; Tacoma, Wash., type 14, comb. service truck; Missouri Valley, Ia., type 40, comb. chem. eng. and hose car; Rochester, N. Y., type 40, chassis; Madison, S. Dakota, type 40, comb., with junior pump; Philadelphia, Pa., type 10, salvage corps car; Camp Hollabird, Md., type 12, triple comb. chem. eng. and hose car.

National Automotive Electric Service Association.

A new organization has been organized with this name to promote and improve service on electrical equipment of automotive vehicles in the United States by co-operation between its members and others interested in the same line of business. The membership will be by firms rather than individuals, each one being entitled to two representatives with one vote for each. Any firm whose entire business is devoted to service on the electrical equipment of automotive vehicles will be eligible to membership in this association. Officers elected were: President, Arthur Jones, president of the Arthur Jones Electric Company, Chicago; secretary, John W. Rusicka, manager Motor Electric Equipment Company.

NEWS OF THE SOCIETIES

(*Continued from page 78*)

civilians during the year 1917, when the last authentic figures and average were available, the loss was $2.46 per capita.

The difference is due to adequate fire protection and prevention, according to the report made by Sheldon Catlin, of Philadelphia, chairman of the committee on fire prevention and construction of buildings. Mr. Catlin, who is vice-president of the Insurance Company of North America, Philadelphia, showed that the Board of Underwriters had loaned to the Government during the last half of 1917 and all of 1918 almost its total engineering force to use in war work. As a result an engineer was on duty at every camp and cantonment to prevent fire loss.

The figures show that in the camps the Government sustained a loss of only $488,330, which is very low compared with losses sustained in the larger cities. Much of this was credited to work of the engineers, who had installed water systems, proper building codes, and fire-fighting equipment.

Three big shipyard fires of the year were discussed, one being held to the building in which it originated by good work. The other two could have been prevented had the water system and other preventative measures been installed, as recommended by engineers, the report shows.

The fire marshals present at the conference with the underwriters included five committees on co-operation between the two organizations whose efforts are directed to "warring on carelessness" and to increasing the efficiency of fire prevention in the United States. These committees follow:

Incendiarism and arson, F. S. Bartow, New York, chairman; Homer Rutledge, Lansing, Mich.; F. M. Morgaridge, New York; Ole O. Roe, Des Moines, Ia.; actuarial bureau, James Wyper, Hartford, Conn., chairman; John G. Gamber, Springfield, Ill.; Charles H. Lum, New York; L. T. Hussey, Topeka, Kan.; fire prevention and construction of buildings, Sheldon Catlin, Philadelphia, chairman; James R. Young, Raleigh, N. C.; George W. Booth, Ira H. Woolson, and Chief John Kenlon, of the New York Fire Department; public relations, E. W. West, of Glen Falls, N. Y., chairman; Goodwin Lee, T. A. Fleming, and H. C. Brearly, of New York.

Society of Automotive Engineers.

The Society of Automotive Engineers announces that the date of its annual winter meeting has been changed from January 12-14 to February 4-6 as a matter of convenience for members who desire to attend the automobile show which will be held at Madison Square Garden the first two weeks in February.

National Highway Traffic Association.

A conference on "Regulations Covering Speed, Weight and Dimensions of Motor Trucks" will be held under the auspices of the National Highway Traffic Association at the Automobile Club of America, 247 West 54th street, New York City, at 8 p. m., on Friday, January 31.

The discussion will be opened by members of the following committees on motor-truck regulations: Chairman, George H. Pride, president, Heavy Haulage Company, formerly member, Highways Transport Committee, Council of National Defense; Charles J. Bennett, state highway commissioner of Connecticut; Charles G. Bond, counsel, Motor Truck Association of America; H. Eltinge Breed, first deputy highway commissioner of New York; David C. Fenner, president, Motor Truck Association of America, formerly member War Industries Board, Automotive Section; George M. Graham, general sales manager, Pierce-Arrow Motor Car Company, formerly chairman National Motor Truck Committee, National Automobile Chamber of Commerce; A. H. Hinkle, deputy highway commissioner of Ohio; S. V. Norton, manager, truck tire sales, B. F. Goodrich Rubber Company; W. G. Thompson, state highway engineer of New Jersey; Lt.-Col. W. D. Uhler, chief engineer, Pennsylvania state highway department, formerly chief of operation, Motor Transport Corps, U. S. Army; A. H. Blanchard, consulting highway engineer, ex-officio.

It is requested by the association that highway officials, engineers, manufacturers and owners of motor trucks freely present their views and thus aid in the solution of a problem which vitally affects the economic development of highway improvement and motor transportation.

An informal dinner, at $1.50 a cover, will be served in the grill room of the club at 6:30 p. m. Dinner reservations should be mailed to Secretary Elmer Thompson, 247 West 54th street, New York City.

North Dakota Society of Engineers.

The eleventh annual convention of the North Dakota Society of Engineers will be held at Valley City, N. D., January 30 and 31.

The subjects to be discussed will include highways and highway improvement, drainage, municipal work, the field of the county surveyor, legislation affecting the work and the status of all engineers, and other topics.

The president of the society is E. J. Thomas, Minot, N. D., and the secretary is E. F. Chandler, University, N. D.

American Civic Association.

Five national housing and civic associations and the American Federation of Labor went on record at a recent meeting here in favor of the creation of a federal bureau for industrial housing, town planning and community planning in the broad sense of dealing with the entire physical environment of the inhabitants. The organizations are the American Institute of Architects, the American Civic Association, the National Housing Association, the National Association of Real Estate Exchanges and the National Municipal League.

Two sessions of some thirty representatives of these organizations, with others from all parts of the country interested in housing and civic development, were held here at the suggestion of the American Civic Association. The meetings were called by Lawson Purdy, Samuel Gompers, J. Horace McFarland, Frederick Law Olmsted and Robert W. DeForest. The following statement was issued:

"A committee was appointed to secure the co-operation of national organizations in drafting a bill to create such a bureau, either in the Department of Labor or the Department of the Interior. The purpose of the bureau will be research, experimentation and the dissemination of information, acting as a central agency for the service of state authorities and local committees.

"It was the sense of the meeting that the scope of the federal agency should include action toward creating a comprehensive and systematic mechanism to facilitate the financing of housing, but no recommendation was made as to how this shall be done. The chair was authorized to appoint a committee to appear before the House Committee on Building and Grounds to oppose the passage of the Senate resolution providing for the stopping of work on Department of Labor building projects not 75 per cent. completed."

Following these meetings there was held the first conference under the auspices of the United States Department of Labor to project the new program for improving the living conditions for employed classes. John Richards, of Washington, chairman of the newly formed Commission on Living Conditions Among Industrial Workers, discussed the project broadly before about one hundred local housing, civic and social workers, but did not go into detail of how the commission expects to organize.

Richards said that the trouble with most organizations in the past has been that they start at the top. The purpose of the commission, he continued, is to include every group in its new plan. Roughly, it will investigate through local committees the two problems, labor and leisure time. Under the latter heading Richards said nearly every sociolological problem could be included. Judge J. Willis Martin, chairman of the Philadelphia Council of National Defence, presided.

PERSONALS

Otis, Harrison Gray, executive secretary of the City Managers' Association, has resigned as city manager of Auburn, Maine, and is now affiliated with the American City Bureau to assist in the further promotion of the commission-manager plan.

Plattner, William W., who for the past ten years has been superintendent of the electric light and water departments of North Attleboro, Mass., has resigned to take his place in the state legislature, to which he was elected. Under his supervision both departments have enjoyed an excellent growth, and this is particularly true of the electric light department. Mr. Plattner was born in Ohio thirty-five years ago. For more than twenty years he has been in public service work, consisting of electric light, water works, electric railways, telephone and gas service. Previous to coming to North Attleboro he was superintendent of the board of public affairs in Bluffton, Ohio. During the past eight years he has acted as a consulting expert for various municipalities in matters pertaining to electric light and power, water works, gas and street railway work; in matters such as franchise rights, municipal ownership, rate regulation and arbitration of rates. He is a member of the American Institute of Electrical Engineers, American Water Works Association, American Academy of Political Science and the New England Water Works Association.

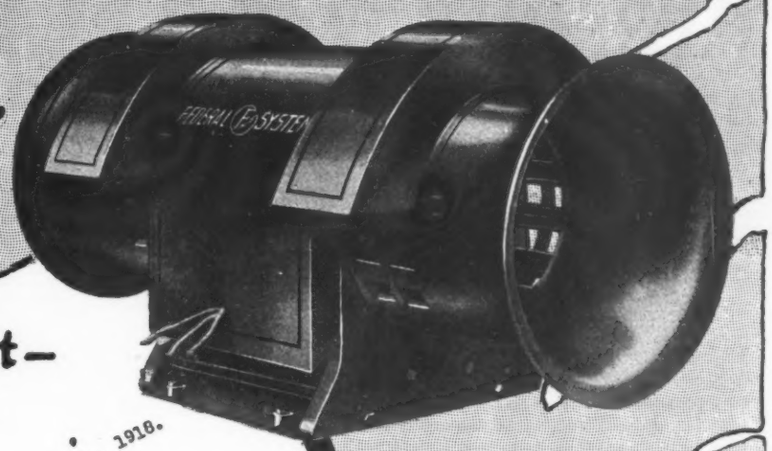
Phelps, Charles E., former chief engineer for the public service commission of Maryland, died recently. He was born in 1871 and received his first technical training at Johns Hopkins University in 1891-1893. In 1902 he was retained by the city of Cleveland to report and estimate upon the cost of an electric street and commercial lighting project adopted by the city council. In 1903 he was retained by the cities of Johnstown, N. Y., and Rochester, N. Y., in litigation over the construction and operation of underground electric conduit systems, and by the city of Montreal to report and estimate upon an underground conduit system project. Two years later he was retained by the city of New York to assist in the investigation of charges for electric street lighting. Later he became chief engineer for the electric commission of the city of Baltimore, and was in charge of the construction of underground conduits. He also served as secretary of the municipal lighting commission of Baltimore and as a member of the sewerage commission. In 1910 he became chief engineer for the public service commission of Maryland, and five years later was appointed to the Maryland state board of health as engineering member.

Gill, Hiram Charles, three times mayor of Seattle, Wash., died there recently of pneumonia, following influenza. He was 53 years old. Gill came to Seattle over thirty years ago after graduating from the University of Wisconsin. For a time he worked in a water-front restaurant and studied law and stenography. Later he entered a local law office. In the early 90's Gill was elected to the city council. In 1910 he was elected mayor but was recalled in 1911. He ran again in 1912, but was defeated. In 1914 he tried again and was elected. He was elected again in 1916, but lost in a contest at the primaries last year.

Attacks on his personal honesty he defeated, but he was compelled to retire to private life with his political principles rejected and himself a center of national interest because of his trial on a Federal indictment charging him with having shielded the Billingsley brothers, noted bootleggers. He was acquitted of this charge. When Gill was elected mayor he adopted a "wide-open-town" policy, with Charles W. Wappenstein as Chief of Police. Wappenstein was convicted on graft charges and sent to the penitentiary. In 1914 he reversed his former policy, waging vigorous war on vice in all its forms. During his last administration Major-General H. A. Greene, in command of Camp Lewis, put a ban on the city, forbidding his soldiers visiting it until an alleged vice syndicate was cleaned up. Mayor Gill maintained that the city was reasonably clean. Attempts to secure his impeachment were finally defeated by a vote of the city council.

Governor Smith, of New York state, has appointed Lewis Nixon, engineer and shipbuilder and former Tammany Hall leader, state superintendent of public works; Michael T. Walsh, of Yonkers, is appointed state tax commissioner.

Federal Electric Fire Siren



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